POPULAR Computing WEEKLY

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Major shake-up for Atari UK

THERE has been a major shake up at Atari UK, just three weeks after the US parent was taken over by a company headed by ex-Commodore chief Jack Tramel.

Atari UK's managing director Graham Clark has resigned, and many of the UK sales and management staff have been sacked.

Clark has been replaced, initially by Simon Westbrood, previously Atari UK's financial controller. He will remain as acting managing director until a successor can be found.

Tramel resigned his position as president of Commodore in January this year, and since his dramatic purchase of Atari from Warner Communications, several key Commodore executives have joined Tramel's organisation in the US.

The upheavals at Atari UK are seen as part of a strategy to streamline the loss-making company and sell Atari products through appointed distributors rather than through the company's own sales force.



Activision sues Microdeal

MICRODEAL, the Cornwall based software company which last week took two Blackburn brothers to court in a software piracy action, has itself been taken to court.

American company Activision instituted proceedings in the High Court on the grounds that Microdeal's *Cuthbert in the Jungle* is a copy of *Pitfall*. Activision claims that the consumer would be hard pressed to distinguish between the two on the Commodore 64.

"We applied to the court for an injunction to prevent Microdeal selling *Cuthbert in the Jungle*," explained Geoff Heath, UK managing director of Activision. "However after reviewing the writ and our prosecution papers Microdeal obviously felt our case was watertight because they didn't fight it.

"They gave the court an undertaking that they would not reproduce, adapt or copy *Pitfall* in any form, and have written to suppliers to say that *Cuthbert in the Jungle* can no longer be sold.

"Our intention was to fight the case on the grounds of a breach of copyright. Happily it didn't come to that.

"We had been working on our approach to this case for some time, but obviously the

continued on page 5 ▶


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POPULAR Computing WEEKLY

Vol 3 No 30

)View

Microdeal ought to be very embarrassed.

In the same week that it sought the protection of the High Court to halt the activities of a commercial piracy racket in Blackburn, it was itself on the recieving end of a court case brought by another software house, Activision.

Activision claimed that Microdeal's game *Cuthbert in the Jungle* was a copy of its own *Pitfall* game. Microdeal admitted it was in the wrong and has since given an undertaking that it will withdraw *Cuthbert*.

This is not the first time Microdeal has been caught out. Nintendo claimed last year that Microdeal's *Donkey King* game was a version of *Donkey Kong*. On that occasion Microdeal agreed to change the name of its game to *The King*.

Microdeal is by no means alone. It just isn't good enough for software houses to start kicking up a stink about piracy — forming themselves into groups, GOSH and FAST, with the aim of fighting piracy — when their own house is in such disorder.

Hardly a one of them doesn't have at least one skeleton in the closet. A *Pac-Man*, an *Asteroids* or *Scramble*. How many currently have a version of *Q-bert* in their catalogue? And when the Olympics arrive just wait and see how many *Track and Field* clones crawl out of the woodwork.

Suppose someone eventually succeeds in proving that software is copyright and/or a private members' Bill imposes substantial fines and possible imprisonment on offenders?

Who then will be first against the wall when the revolution comes?

They will.

)Presents...

)Futures...

How to get started with networking — let your micro do the walking ... *Delta Queen* is the Spectrum Star Game piloting a Missippi paddle steamer ... and *Paintbox* on the BBC, a two part easy-to-use graphics utility

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How to submit articles Articles which are submitted for publication should not be more than 2000 words long. The articles and any accompanying programs should be original. It is breaking the law of copyright to copy programs out of other magazines and submit them here — so please do not be tempted. **Accuracy** *Popular Computing Weekly* cannot accept any responsibility for any errors in programs we publish, although we will always try our best to make sure programs work.

Quest develops CP/M system for QL

QL OWNERS should be able to run CP/M software on their machines

Hampshire-based Quest Automation will be converting Digital Research's CP/M 68K operating system to run on the QL.

"It will, in effect, mean that all CP/M software will run on the QL," said Quest's Grant McKeown. "Although the system is written to run with the 68000 chip, there are a few changes that need to be made for the QL.

"We feel that this will provide the key for using the QL for business purposes."

CP/M 68K for the QL is planned to be available in October priced at £49 50 Quest will also shortly be announcing hard and floppy disc drives for the QL as well as add-on memory for the machine. Details from Quest Automation, School Lane, Chandlers Ford, Hants

● A joystick adaptor for the QL allowing any Atari-standard joystick to be connected is now available at £8 00 from Timedata, 16 Hemmells, Laindon, Essex.

Activision

continued from page 1

John Symes of Microdeal

release of *Pitfall* in Britain, and its conversion to the Commodore 64 has accelerated proceedings."

Microdeal's solicitor, Michael Drysan, confirmed that Activision had an open and shut case "Microdeal obtained the license for the game from Tom Mix in the States in good faith. But when we compared our licence with Activision's, theirs appeared to have been agreed first, so we were happy to withdraw."

Activision will nwo be taking action against Tom Mix in the US, again on copyright grounds.

Microdeal has, however, been successful in its case against Dr Tariq Mohammed who with his brother, 14 year old Mohsan, copied Dragon games from Microdeal, among other companies, and sold them at much reduced prices. On Friday, July 20, it obtained a further injunction preventing Mohammed from copying and selling Microdeal's games. After the ruling, Microdeal has decided not to pursue a full trial.

Ivan Berg — Mirrorsoft tie-up

IVAN Berg Software has teamed up with Mirrorsoft to release a range of new titles for the Commodore 64, Spectrum, BBC and Electron machines in September

These include *Know Your Psi-Q* — testing your psychic power and a no-diet weight control system designed by Professor Justin Joffe. Versions of *Know Your Personality* and *BBC Mastermind* will also be released on the Spectrum and BBC machines.

MSX versions of all the titles are planned through Mirrorsoft before Christmas

Menzies opts for electronic software

TWO UK distribution companies are hoping to change the way you buy your software

Program Express of Edinburgh and Micro Dealer UK have jointly launched a scheme to download software from 'retail modules' installed in individual shops.

Explained Neil Johnson, Micro Dealer's managing director "Customers will first look at a menu on the unit's display to see which titles are available When they have decided which they want, they buy a blank cassette, disc or cartridge and slot it into the machine Twenty seconds later the software is downloaded into the cassette or whatever via the machine from a central host computer" The system is still under evaluation but Neil hopes that the first such machines will be in the shops by October that year

The cost of software bought from the system should be the same as a conventional cassette, cartridge or disc

A similar system, Romox has been tried in the US but has yet to get a full-scale trial Prism, which has the UK rights to Romox has yet to evaluate the system in the UK.

So the Program Express/Microdealer system could become the first operation of its kind to go on trial in this country Already John Menzies has shown considerable interest. "We have ordered five machines," said managing director Robert Black. "It means we will be able to have a full range of software available to customers all the time and will save a huge amount of storage space We hope to have our first machines installed before Christmas."

Enterprise move

SINCE losing its exclusive distribution contract with Sinclair, Prism has gained the distribution rights for the new Enterprise computer as well as the Oric Atmos.

Prism will distribute the Enterprise through a national network of retailers and dealers, although Enterprise has retained a small number of accounts to supply direct.

First deliveries of the Enterprise are due in September.

UP IN THE AIR. *Virgin's new in-house programming team is to produce its first games for the Commodore 64 and Spectrum in September. The five-strong team is (left to right) Jan Mathias, Pat Mitchell, Dave Chapman, Andy Wilson and Steve Webb*

Oric price increased

THE price of the Oric Atmos has been increased by almost £20 to £189 95. The company is blaming the dollar exchange rate for the increase

"At present Oric is building up stock levels quickly in time for Christmas," explained an Oric spokesman. "But the strong dollar makes the price components high, and we have had to raise the price accordingly"

Oric announced record June sales of £2½m, largely taken up by £1½m sales to France, although Italian and German orders also increased. Only 30 per cent of this figure — about 4,500 units — went to the UK market.

The prices of Oric peripherals remain unchanged.

Rabbit bounces

RABBIT Software, best known for its Commodore games such as *Troopatruck*, has gone into liquidation.

The company had been in difficulties for some time following the death earlier this year of its founder Alan Savage

Salamander SOFTWARE



DRAGON 32/64	PRICE
DRAGON TREK Excellent version of this classic game	9.95
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737 FLIGHT SIMULATOR* Professional standard	9.95
FRENCH TUTOR** Up to and beyond O level	9.95
GRAPHS ** Five programs up to A level standard	9.95
VECTORS ** Fourteen programs up to A level standard	14.95
FRANKLIN'S TOMB First of the Dan Diamond Adventures	9.95
LOST IN SPACE The Dan Diamond Adventure continues	9.95
FISHY BUSINESS Conclusion of the first Dan Diamond Trilogy	9.95
EAGLE Original machine code arcade game	7.95

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** MAY BE TRANSFERRED TO DISC

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Letters

Consider the facts

I was very annoyed to read Justin Kerswell a letter in the July 12 *PCW* complaining about games not being released on the Commodore 64 until after they have been released on the Spectrum.

He is obviously suffering greatly from jealousy and not considering the facts The Spectrum has been out longer than the CBM64 Any programmer writes on the machine he has which, more often than not, is a Spectrum. The problem is then for the software house to find a suitable author to convert programs from their original form onto other machines and games can sometimes be very hard to convert from the Spectrum to the 64

As far as sound is concerned, the Spectrum is a bit pathetic but some games manage to overcome this — *Ugh!* is one example

If the 64's graphics are so good why does Mr Kerswell want *Atic Atac* and *Jetset Willy* on the 64?

Surely, he can find something better on his own machine

Alan Fairburn
69 Fontainman Road
Ammanford
Dyfed
Wales

Shake-up reviews

I would like to add to the comments following Boris Allan's *Ziggurat* on unsatisfactory reviews in the June 21 *PCW*

I am fed up with reviewers comparing games for one computer with those for another For example, when *The Hobbit* was first reviewed it was described as "the game by which all other adventures will be judged" As a result any new adventure is given a bad review if it isn't all singing, all-dancing with hi-res colour graphics and three-part harmony music. In one magazine I read a review for a Dragon program that was totally derisory — simply because it wasn't as good as *Jet Pac* on the Spectrum.

In some magazines the same people review for five or six different computers and are nearly always biased towards one in particular.

The whole system of games reviews in computer magazines needs a big shake-up. People with experience on a particular machine — who understand how it works — should be used.

Simon Mills
7 Boundaries Mansions
Boundaries Road
London SW12

Only sympathy

I was interested to read in the July 19 Issue that Chris Gifford — a reviewer of some 80 books and items of software — did not like my *Ziggurat* in the June 21 *PCW* concerning uncaring reviewers and reviewing.

Mr Gifford was even offended by my piece All I can offer is sympathy — most people seem to agree with me . . .

Boris Allan
Stockport

Not quite right

I am writing to complain about your News Desk feature, and your apparent disregard for smaller companies wishing to appear in it

Three weeks ago, we applied to appear in News Desk. We had produced a pack of listings for Dragon owners for use with the television series, *Me and My Micro* We thought this was a useful service, and decided that it was worthy of inclusion in News Desk.

We then telephoned you, to see what your reaction to the inclusion of such a feature was, and we were told 'Oh yes, that is definitely worth considering'. We forwarded a letter detailing our product, as requested, then we waited. And we still are

Two issues of your magazine have passed, the first of which contained an advertisement placed by us, yet still no mention. We are prepared to accept that in the first of these issues, your space was swallowed up by a large feature on Dragon's carve up, but in the second issue, we can see no excuse for not including our piece You had two pages instead of one. I am sure that our piece would have generated more interest than a stupid and rather sick cartoon.

In the future, could you try to give more thought to what you do and do not include Remember that it is not only large companies who have useful services to offer

Mark A Blease
Orion Software
64 Prince Street
Rochdale
Lancs OL16 5LJ

You seem to have got hold of the wrong end of the stick.

Every week we have far more news than we can possibly print and something has to go. The Newsdesk feature is not something you can make an *application* to appear in. And I'm afraid I don't share your view that our cartoon was "stupid and rather sick". I rather liked it.

A case of DIY

If like me you have purchased an Amstrad CPC464 computer and wish to use the centronics printer Interface, you will probably have experienced difficulty obtaining a printer cable

A phone call to Amsoft produced the information that they do not intend to make one available until their own printer is launched in September, and even then it probably won't be sold on its own.

It was obviously a case of DIY A solderless (IDT type) 36-way Amphenol connector for the printer and 34-way ribbon cable were easy to obtain from Technomatic, 305 Edgeware Road, London W2 A solderless 34-way, edge connector seemed non-existent, however, until I looked in Tandy and there it was — Part No 276-1564

Although not strictly necessary, it is possible to insert a key in the edge connector (between contacts 3-4 and 21-22 — using Amstrad rather than Tandy numbering) by carefully sawing a small slot and glueing in a suitable piece of plastic. Fitting the connectors to the ribbon cable is easily done in a vice, but be sure you get them the right way round with positions 18 and 36 of the Amphenol plug unused.

Total cost was about £12.

D M Bryant
4a Kenilworth Road
Petts Wood
Orpington
Kent

Rom failure

Reading the 'Answers to Queries pages of computer magazines gives a fair indication of the frequency of faults (and bugs) on various machines

It is only recently that the question of faulty Roms has come up I wonder just how many Roms, which are in perfect condition during the early life of the machine, become 'bugged' as mine has In my case the contents of an address used during loading has altered its contents Luckily for me my Rom failed in an obvious way — the machine refused to load. But say an address affecting calculations had altered. say, my VAT return had been affected in some way, or a pharmacist's NHS return had come up with false figures, who would have been responsible?

How often do Roms fail? I would be interested to hear of your reader's experiences Does anyone know why they fail?

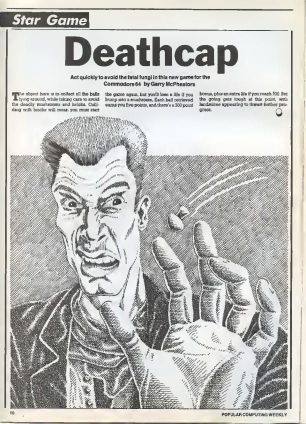
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MACHINE CODE

Deathcap

Act quickly to avoid the fatal fungi in this new game for the Commodore 64 by Garry McPheators

The object here is to collect all the balls lying around, while taking care to avoid the deadly mushrooms and bricks. Colliding with bricks will mean you must start the game again, but you'll lose a life if you bump into a mushroom. Each ball retrieved earns you five points, and there's a 300 point bonus, plus an extra life if you reach 100. But the going gets tough at this point, with landmines appearing to thwart further progress.



```
0 REM*********************************
1 REM*                               *
2 REM*      COPYRIGHT (C) 198[illegible]         *
3 REM*                               *
4 REM*    BALL MAN FOR THE CBM 64    *
5 REM*                               *
6 REM*       BY G.MCPHERTON[illegible]         *
7 REM*                               *
8 REM*********************************
9 PRINT "[illegible]" POKE53281,0 POKE53280,0 [illegible]
10 POKE53280,1 POKE5[illegible]28,0 PRINT [illegible]
11 PRINT"[illegible]PLEASE WAIT[illegible]"
12 L1=3 C=2 V=54296 W=54276 A=54277 AF=54273 [illegible]=54272 [illegible]=54278 FH=54275 MV40
13 SC=200 POKE650,255 P_=54274
14 POKE56334,PEEK(56334)AND254 POKE1,PEEK(1)AND251
15 FOR1=0TO511 POKEI+12288,PEEK(I+53248) NEXT
16 POKE1,PEEK(1)OR4 POKE56334,PEEK(56334)OR1
19 REM***CHARACTER S[illegible]***
20 FORI=12288TO12381 READA POKEI,A NEXT
21 REM***DATA FOR CHARACTERS***
49 DATA0,24[illegible],243,243,0,[illegible]3,[illegible]3,[illegible]3
50 DATA60,66,129,129,129,129,[illegible]6,[illegible]0
51 DATA24,60,126,255,153,24,24,24
52 DATA60,24,153,255,255,153,24,60
53 DATA0,247,132,132,244,20,24,[illegible]47
54 DATA130,190,170,145,190,13[illegible],1[illegible],30
55 DATA254,190,13[illegible],[illegible]40,[illegible]30,1[illegible],[illegible]40,25[illegible]
56 DATA0,0,1[illegible]9,5[illegible],36,24,0,0
57 DATA0,254,128,128,254,12[illegible],1[illegible]0,[illegible]5[illegible]
58 DATA0,254,128,12[illegible],2[illegible]4,1,1,25[illegible]
59 DATA255,12[illegible],1[illegible]9,129,12[illegible],1[illegible]9,2[illegible],255
60 DATA15[illegible],9[illegible],6[illegible],126,[illegible]28,60,9[illegible],1[illegible]
199 POKE53272,29
201 P=1524
202 REM***PLACE RANDOM [illegible]***
210 PRINT"[illegible]"
211 FORM=1TO110
212 R=INT(RND(1)*650)
213 POKE1144+R,1 POKE55416+R,[illegible]
214 NEXTM
215 FORN=1TO100
216 R=INT(RND(1)*650)
217 POKE1144+R,2 POKE55416+R,[illegible]
218 NEXTN
221 FORAA=1TO110
222 R=INT(RND(1)*650)
223 POKE1144+R,0 POKE55416+R,1
224 NEXTAA
225 REM***PRINT MAZE ONTO SCREEN ROUTINE***
230 PRINT"[illegible]"
239 FORI=0TO16
240 PRINT"[illegible]" FORL=[illegible]32 POKELF+L,0 NEXT
241 POKELF+1,150 POKELF+5,[illegible] POKE[illegible] [illegible] POKELF+4,[illegible]5 FORL=0TO1 POKELF+4,21
242 POKELF+4,20 NEXT
243 NEXTI
250 PRINT"[illegible]"
269 M=0
270 POKEP+M,3 POKEP+542[illegible]+P,1
273 POKE1483,18 POKE5[illegible]57[illegible]5
274 POKE1484,18 POKE557[illegible],1
275 POKE1485,18 POKE5[illegible]5[illegible],1
276 POKE1523,18 POKE557[illegible]5
277 POKE1525,18 POKE55[illegible]79,1
278 POKE1563,18 POKE[illegible]5
279 POKE1564,18 POKE55[illegible]3[illegible],1
280 POKE1565,18 POKE558[illegible],7
281 REM***[illegible]***
282 GETA$
305 IFA$<>"[illegible]"THENPOKEP+M,[illegible]2
310 IFA$="W"THENM=M-40 [illegible]
320 IFA$="Z"THENM=M+40 [illegible]
330 IFA$="A"THENM=M-1 [illegible]
340 IFA$="S"THENM=M+1 [illegible]
34[illegible] IFPEEK(P+M)=0THEN[illegible]
343 IFPEEK(P+M)=2THEN[illegible]
344 IFPEEK(P+M)=1THENSC=SC-5 [illegible]
345 IFPEEK(P+M)=1[illegible]THEN[illegible]
346 IFSC=200THEN[illegible]
347 IFL1=0THEN3200
348 PRINT"[illegible]"
349 PRINT"[illegible]"
350 GOTO[illegible]
499 REM***[illegible]***
500 POKEW,[illegible] POKE[illegible] POKE[illegible] POKE54[illegible] POKE[illegible] 17 POKELF,37
501 RETURN
1000 POKE[illegible] POKELF[illegible] 130 POKELF+4,33
1001 FORI[illegible]
1200 [illegible]
2000 [illegible]NEXT
2001 POKELF[illegible]32 [illegible] POKELF+4,21
2002 POKELF+4,[illegible]THEN
2003 REM***[illegible]***
3200 POKE53[illegible] [illegible]YOUR SCORE="SC"[illegible]
3300 PRINT"[illegible]"
3400 INPUT[illegible]$
3401 IFA$="[illegible]"THENRUN
3402 IFA$="[illegible]"THEN[illegible]
4000 SC=SC+200 [illegible] NEXTNN RETURN
4499 REM***[illegible]***
4500 PRINT"[illegible]PRESS ANY KEY TO [illegible]***"
4522 GETA$ IFA$=""THEN4522
4523 PRINT"[illegible]" POKE532[illegible]1,[illegible]
4998 FORA=0TO200 POKE1[illegible] [illegible] NEXT[illegible]
4999 REM***INSTRUCTIONS***
5000 PRINT"[illegible]INSTRUCTIONS FOR [illegible]"
5001 PRINT"[illegible]THE [illegible]"
5002 PRINT"ALL THE [illegible]"
5003 PRINT"[illegible]WATCH OUT FOR THE [illegible]"
5004 PRINT"[illegible]"
5005 PRINT"[illegible] TOUCH ONE BEWARE!! [illegible]"
5006 PRINT"HAVE [illegible]"
5007 PRINT"[illegible] SUBTRACTED FROM YOUR"
5008 PRINT"SCORE [illegible]"
5009 PRINT"[illegible]YOUR SCORE [illegible]"
5011 PRINT"[illegible]"
5012 PRINT"5 POINTS. THE [illegible]"
5013 PRINT"[illegible]"
5014 PRINT"[illegible]"
5015 GETA$ IFA$=""THEN[illegible]
5016 PRINT"[illegible]THE GAME [illegible]"
5017 PRINT"[illegible]S LEFT."
5018 PRINT"[illegible]"
5019 PRINT"[illegible]"
5020 PRINT"[illegible]"
5021 PRINT"[illegible]"
5022 PRINT"[illegible]"
5023 GETA$ IFA$=""THEN5023
5024 RETURN
```

Trip of a lifetime

Christina Erskine talks to the threesome at Tryptych Publishing

Take an ex Army captain, a mass market book publisher, and an Australian civil engineer. Could this be the ideal mix for a new software house?

Certainly the triumvirate in charge at Triptych Publishing seem to think so. From hopeful beginnings at the London Business School, they are now on the point of launching a suite of six programs, aimed at bridging the gap between the home and business market.

"We met one another while doing the year long Sloan programme at the Business school," said managing director David Juster, the former army officer. "Since everyone who does that particular course is expected to become a big boss after graduation, we were all full of ideas as what to do after we'd finished."

It was David, too, who initiated the idea of going into computing. "I had come to the conclusion that computers were A Good Thing, and bought myself an Apple. Then I wasn't quite sure what to do with it, so I had to identify other computer buffs on the course and pick their brains."

David correctly identified civil engineer Stuart Armstrong now Triptych's managing editor, and plans for a computer business began in empty lecture rooms at the end of the day.

"Originally we wanted to go for software in the educational market," continued David. "But as we went into the idea in more detail, we came up with one area where we felt there was a definite need."

Triptych's programs now fall into the applications category, with an education bias. 'Integrated applications through learning' is how they term it now, having discovered that 'Adult-orientated software' had dubious overtones for some people!

The third member of the founding troupe, Duncan Baird, came in to provide useful publishing experience, to add to Stuart's technical know-how and David's management interest.

"We knew who our target audience was; people who have bought a micro and want to put it to serious use without necessarily learning to program," explained David.

"And we wanted our products to offer more than things like home budgets — after all, if you can't do your monthly accounts on the back of an envelope you might as well employ an accountant.

"The first six programs are fair indication of what will follow. *Entrepreneur* is a program designed to help someone set up a small business — you tap in projected figures, and the program will tell you what sort of profit you'll make, and what are the things to look out for. In some ways, we could have done with *Entrepreneur* when we set up Triptych."

Numbers at Work is a kind of adult numeracy program, which can help with anything from arithmetic to how to fully understand mark-ups, simple and compound interest and so on.

"Equally, *Project Planner*, *Decision Maker* and *Forecaster* can be used by either business people or interested home users.

Then we plan that about a quarter of our output will concentrate on more general topics. The first of those to come out will be *Star Watcher*, a comprehensive astronomy program."

Each of the program packages comprises three parts: a teaching program designed to initiate the user into the subject, an applications program where they can use their knowledge to good effect and an accompanying book.

"The book contains anything that we feel is appropriate to text than to the micro — things you would want to flip through and refer back to, and which would take up memory space as reams of text on the screen," explained David.

Prices have been kept as low as possible — from £14.95 for Spectrum programs to £19.95 on the Commodore and BBC to discourage people from thinking the programs are either specialist or heavyweight. Triptych hopes its programs will be absorbing and interesting rather than simply educational.

"We've been very pleasantly surprised by some of the reactions to the titles. Stuart's wife, who had always been of the opinion that the only use for a home micro was to play *Pacman*, spent half an hour with *Project Planner*, and is now insisting that she gets a copy for the travel business she runs."

Confident though they are that they have found an untouched seam in the software market, there is still the problem of getting this across to the consumer.

"Quite honestly it would have been helpful if one of the big companies had started doing this sort of thing already and paved the way for us. But while there are databases, word processors, spreadsheets and so forth around in abundance, there doesn't seem to be too much telling how to manipulate them and what sort of situations they are useful for. So it looks like we have to start the ball rolling.

"We really felt, 18 months ago, that the market now would be a lot more sophisticated than it actually is — and I wonder if the very mixed quality of today's software hasn't begun to put people off."

The trio went into every aspect of their image with a good deal of care. Some of the longest arguments arose over the company's name.

"We were adamant that we would not be Microsomething or Compusomething. We see ourselves as a creative editorial team, rather than overtly technical. Our name would have to be something esoteric, and something amorphic.

With a vocabulary like that, it is not surprising that David thought of Triptych. "I was amazed we hadn't thought of it before. A triptych is an artwork in three parts: there were three of us, and there are three parts to each of our programs — it fitted like a glove."

'Publishing' was added to avoid confusion with a Corby construction company with the same name, and their advertising agency thought up the name *Brainpower* for the program series, having presumably decided that Triptych could be too esoteric and amorphic for the mass-market.



From left to right: Duncan Bird, David Juster and Stuart Armstrong



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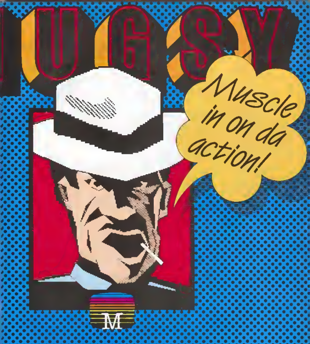
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UGSY
Muscle in on da action!
M

Tracer bullets

Program *Missile Strike* **Micro** BBC B **Price** £7.95 **Supplier** Superior Software, Regent House, Skinner Lane, Leeds LS7 1AX.

Superior Software bill this as "the classic defence of six cities" It is. That's the good news and the bad news.

Every now and then a huge aircraft or flying saucer appears and you get extra points for blasting it. You guessed it — another version of *Missile Command*.

On the plus side it's a very good implementation with fast response, clear graphics, decent noises and a number of increasingly nasty homing missiles in later stages. On the minus side — that's all it is.

The screen shows a landscape with six blue cities. Waves of attackers streak down like tracer bullets to destroy them and your missile base. Using keys or joystick you move a cross-hair sight over the screen and fire at the attackers. You have to aim ahead of the incoming missiles as it takes a few moments for your defence rockets to rise.

We've seen games very like this so often that newcomers have to show more imagination and novelty than this to be appealing.

If it were a bargain-price tape it might pass, but as a full-price program it will only duplicate those you already have on the shelf.

Dave Watterson

Space spiders

Program *Laser warp* **Micro** *Amstrad* **Price** *£7.95* **Supplier** *Amsoft, 169 Kings Road, Brentwood, Essex.*

Laserwarp is one of approximately 60 programs in the first batch of titles released by Amsoft for the new Amstrad computer.

The plot of this arcade type game is nothing new: stop the "Master" from taking over the Galaxy by shooting a hole in his "Phoenix"-type mothership and then killing him. The only problem is that there are eight fleets of his minions to be destroyed first, including some very cute Galactic Spiders, Armoured Droids and Hyperspace Chickens, all of which fire homing missiles at you. Each fleet also contains a number of indestructable craft which attempt to ram you. All pretty standard stuff.

It is very easy to play, being both joystick and keyboard compatible, as well as offfering a practice mode, although the "Hold" key failed to work. The graphics are quite good, but the sound doesn't make full use of the machine.

Laserwarp is in fact very unexciting to play. The only attack wave that offered any real challenge is the one against the Master himself.

Greg Pearson

Grid games

Program *Noguard 32* and *Connect 4* **Micro** Dragon 32 **Price** £4.95 **Supplier** Oran Software, 64 Prince St, Rochdale, Lancs OL16 5LJ

Two popular games — *Connect 4* and *Othello* (called Noguard 32 here) are contained on this cassette. Both are, of course, grid games. In *Othello*, each player must capture squares in order to take control of adjacent blocks. The object is to own more squares than the other player when all blanks have been filled. In this version high resolution graphics are used and the captured squares marked with a sunburst effect. You can play either the computer or another player against the computer: it is not too difficult to win.

Connect 4 is the game where the grid is seen as a series of columns and the player can take the next available square in any column building from the base. The object is to achieve four squares in any straight line. This version uses colour graphics.

This is very much an economy pack and good value at £4.95. There are no frills in either the games themselves or in the packaging but certainly the games are as authentic on the computer as on the original board versions.

Derrick Trueman

Rare jewels

Program *The Pit* **Micro** Commodore 64 **Price** £9.95 **Supplier** Thorn EMI Software, Film House, 142 Wardour Street, London W1V 3RU

The Pit from HesWare seems very much like a throwback to the early days of arcade games - it has only a single screen and no frills like music or different levels of difficulty.

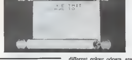
The plot revolves around mining for rare jewels beneath the surface of an alien planet. The mine is guarded by robots which try to prevent you from reaching the jewels, but they are easily avoided or shot. Before you can return to your ship, you must seize at least one of the large jewels from the Pit which is at the bottom of the mine. The jewels in here are guarded by deadly missiles. In order to get back to you ship you have to leave the Pit via a chamber containing a monster swimming in green slime. If you negotiate this bit successfully, the whole process is repeated again and again.

A pretty basic game. People who still enjoy *Space Invaders* may well find it of interest, but players who have become used to the faster and more sophisticated games now available will find the repetitive action and simple graphics and sound pretty unexciting.

Richard Corfield



Oops! We missed out the details from last week's review of *3D Tank Duel*. Here they are: ***Micro*** *48K Spectrum* ***Price*** *£5.50* ***Supplier*** *Realtime Software, 32 Sovereign St, Leeds.*



Time and logic

Program *Castle of Dreams* **Micro** 48K Spectrum **Price** £7.95 **Supplier** Widgit Software, 48 Durban Road, London N2.

Castle of Dreams is a straightforward educational adventure game consisting of various puzzles and problems (differently arranged each time you play) which must be tackled successfully in order to progress through the castle corridors

Provided with the game tape is a booklet describing the half dozen tasks you will tackle. These vary in difficulty: some, like matching some figures with their reflections, take time and logic, others, like using keys to pass through different colour odours, are easy — unless, that is, you are using a black-and-white monitor You'll need good mental arithmetic for the Mosaic Floor — but I'll let you find out why for yourself

Unlike many other games there is no chance to save a partially completed game to tape, so you will need to book a good slab of computer time before playing.

The title is one of the shorter and more accessable adventure games around and so is ideal for the newcomer to decide if he or she really wants to get into the world of micro adventures It won't challenge *The Hobbit* but it should find a niche in the market as a good beginners adventure

Simon Springett

Nine lives

Program *Caesar The Cat* **Price** £6.95 **Micro** BBC B **Supplier** Mirrorsoft, Holborn Circus, London EC1P 1DQ

Kittens are lovable but destructive beasts Let loose along the shelves of a crowded larder an enthusiastic cat chasing mice can easily knock down dishes If he catches the mice you might forgive him, but if he destroys your favourite china he's out on his ear! That's the basis for Mirrorsoft's *Caesar The Cat* game

If he dislodges a red dish it's all over and the game ends. His mission is to pounce on various mice thirty of them invading the larder The quicker he does it the better Think of the starting points as his lovability index - the less efficient he is and the more he breaks the less easy he is to be fond of When he (and you) are good enough to clear out all the mice you start again with a faster, harder game up to ten levels (It ought to have been 9 lives really.)

The animation is superb, the screens colourful and the music good. Caesar can be cotrolled by keys or joysticks It is great fun but I didn't find it compulsive

A very colourful larder is shown though the shelves themselves are not outlined Caesar can jump up and down so long as he is between items of crockery If he jumps on a dish it falls and points are lost.

Jan Watterson

Sprite data

Program *Go Sprite* **Micro** Commodore 64 **Price** £9.95 **Supplier** Mirrorsoft, Holborn Circus, London EC1

One of the main complaints about the Basic on the Commodore 64 is that it is very difficult to make use of the advanced feature supported on this machine — high-resolution graphics, sophisticated sound and sprites.

Not surprisingly a large number of utility programs and Basic extension packs have appeared to fill the gap *Go Sprite* from Mirrorsoft is one of the latest, a sprite development program which enables you to design, display and animate sprites.

The main program has three principal screens — one for editing sprites in either hi-res or multi-colour modes, one for selecting priorities, overlaying and copying sprites and one for animating them. On all screens functions are selected and controlled using a fashionable icon-driven command system similar to that used on some business micros Up to 32 sets of sprite data can be created simultaneously making quite sophisticated effects possible Once defined, your sprites can be saved on tape or disk for later use

As well as the main program, the tape also provides four sets of sample sprite data and another program which generates Basic data statements from raw sprite data.

In a short review it is impossible to cover all the details of a package as sophisticated as *Go Sprite* It is a complete sprite development tool, and is a very professional product. The command system is easily learnt, and once mastered it is very quick to use Overall, this is an excellent utility

Richard Corfield

Gremlins

Program *Mr Wiz* **Micro** Electron **Price** £7.95 **Supplier** Superior Software, Regent Street, Skinner Lane, Leeds LS7 1AK

Once upon a time there was a cute little pixie called Mr Wiz, who had mixed blessings. He lived in a garden full of cherries and apples but was perpetually being chased by the horrible gremlins who lived in the mushroom at the centre of the garden. They had this nasty habit of popping out of the mushroom whilst Mr Wiz was busy gobbling up as many of the cherries as possible before his final fate of being eaten by the gremlins

Luckily for Mr Wiz he had three lives apples he could drop like bombs onto the nasty gremlins, and a final desperate measure he could lock his crystal ball at them.

Unfortunately for Mr Wiz, life in the garden was always short lived and he didn't by any means live happily ever after — least not with me in control

About Mr Wiz I have mixed feelings I liked the idea and the high speed chase which is the basis of the game I disliked the never-ending music which accompanies the game like never ending ice-cream van chimes

Fred Short

Reviews

Slowed down

Program *Supercode II* **Micro** 16/48K Spectrum **Price** £9.95 **Supplier** CP Software, 17 Orchard Lane, Prestwood, Great Missenden, Bucks HP16 0HN

Supercode II is a new version of CP Software's original Supercode Spectrum toolkit, now with more routines and compatible with Microdrives.

The routines can be used in both 16K and 48K machines, but with the larger memory you also load a Basic program which will demonstrate the routines in use.

Supercode's facilities include screen manipulation and scrolling routines, sound generators including a useful laser sound, and program compression, protection and manipulation routines. These include *On Error Goto* and *On Break Goto* — both useful in program writing as well as for program protection. All the routines seemed to work, although not all were quite as useful as they might seem. I tried the Contract Program option to speed up a game I had written in Basic, only to find it slowed it down!

The program includes a useful Save to Microdrive option, but be warned — the saving operation re-formats the cartridge, deleting any other data on it.

The program was supplied with two manuals: the original *Supercode* version and a supplement explaining the new routines and Microdrive options. This arrangement is, frankly, a bit of a mess, and the sooner the two are combined into one the better.

Meanwhile, *Supercode II* offers a wide range of useful routines at a fair price.

Simon Springett

Bolts of laser

Program *Megagalactic Llamas Battle at the Edge of Time* **Micro** Commodore 64 **Price** £5.50 **Supplier** Llamasoft, 49 Mount Pleasant, Tadley, Hants.

The longest game title ever seen must surely be *Megagalactic Llamas Battle at the Edge of Time*. No prizes for guessing this comes from Llamasoft.

It's actually a conversion of an expanded Vic20 game which Llamasoft put out some time ago. So it's not surprising to find that it has only a single screen of action.

This follows the pattern familiar from other Llamasoft offerings — what Jeff Minter likes to call "a fast blast". In this case you control a llama which finds itself under attack from mutant spiders. These descend on webs which eventually break dropping the spider to the ground, whereupon it advances towards the llama, destroying it if it makes contact. The llama defends itself by spitting bolts of laser energy, these destroy the spiders and their webs. However, to make it more difficult, in order to hit the grounded spiders, the laser bolts must be bounced off a force field above the llama.

Despite the bizarre plot and simple action, this game is great. Jeff Minter long ago figured out how to write fun fast action games, and this one is well up to the usual standard, and only £5.50. The graphics and sound, although apparently quite simple, are also very effective.

Richard Corfield

Mogic carpet

Program *Tales of the Arabian Nights* **Micro** Commodore 64 **Price** £7.00 (cassette) £9.00 (disc) **Supplier** Interceptor Micros, Lindon House, The Green, Tadley, Hants.

Speech without any extra hardware is promised by *Tales of the Arabian Nights* from Interceptor Micros.

As soon as the program has loaded the computerised voice makes itself heard. Admittedly it sounds like a Dalek with its mouth full of porridge, but with a little concentration you can make out what it is saying.

The voice speaks again at the start of each level of this addictive arcade game. The plot concerns one Prince Imrahil, whose quest is to rescue Princess Amitra from the clutches of the evil Sultan Saladin. To achieve his goal, he must successfully negotiate eight difficult stages, including a dangerous ocean voyage, a journey by raft up a crocodile filled river, an underground cavern full of unfriendly genies, and a flight over the desert by magic carpet. He then reaches the Sultan's Palace where he must avoid the guards and find his way through the Palace and his garden before he can free the Princess. They then make good their escape by magic carpet — all good Arabian Nights stuff.

It's original, challenging and very compulsive. The colourful and interesting graphics are of high quality, and the music track is exceptionally good — a very accurate version of *Scheherezade* by Rimsky-Korsakov.

In fact, this is one of the best games for the Commodore 64 I have seen for ages.

Richard Corfield

No strings attached

Alan Mcdonald takes a look at input and string manipulation in Part 3 of his advanture series

This week we shall take a look at input and string manipulation.

The Input routine

An effective input routine must do the following things.

1) Allow characters to be entered from the keyboard

2) Print what is being typed to the screen and store the information into a buffer

3) Allow typing mistakes to be corrected (Deleted)

4) Check to see if the *Enter* key is being pressed

A buffer is created (T–Buff) which is used to store the data being typed in.

The maximum amount of data that can be entered into the adventure game is 32 characters. This can be changed to a maximum of 255 by changing the following lines in the assembly listing 3130 DEFS 32 DEFS amount, also change line 3530 to the required amount (The scan routine will also need to be altered.)

A routine will need to check for valid key presses, in the range of 33 to 137. Study this week's assembler listing and examine the input routine. When the input routine is run a cursor will be printed to the screen at all times. It only disappears once *Enter* has been pressed.

To check for a key depression we use a routine similar to this:

```
        LD A,204        equivalent of PAUSE 0
        LD (23611),A    in BASIC
CHECK   LD A,(23611)
        CP 204
        JR Z,CHECK
        LD A,(23560)
```

23611 is the system variable *FLAGS* whilst 23560 is the system variable *LAST K*.

Note: When the input routine is used characters may be deleted by pressing *Delete* (Caps shift + 0) or simply 0 on its own. Also note, it is possible to delete a whole line by pressing the *Edit* key (Caps shift + 1)

String manipulation

If you examine this week's assembly listing, you will find a section of code labled 'Scan routine'

What this does is to search through the buffer (T-BUFF) looking for a string of characters. As an example, let's imagine that we want to see if the buffer contained the word *Adventure*. We would do the following steps:

```
Z1      DEFM "          ; the string 9 characters
        ADVENTURE"      ; long plus a space

        LD HL,Z1        ; HL register pair points to
                        ; the string
        LD B,10         ; B register holds the length
                        ; of the string
        CALL FIND       ; call the find routine
        JP Z,FOUND      ; if a match is made then
                        ; jump to the routine found
```

If you have not already noticed, this week's assembler listing is divided into two parts:

1) Part one lines 3030 to 4720
2) Part two lines 9080 to 10810

Part one contains the input and scan routines, whilst part two forms the main execution loop of the program. If you study it closely, you will notice that it calls non-existent routines. These routines will be given in future issues.

As another example, let's imagine that we wanted to search for the word *Look*. As you know in an adventure game, the word *Look* has the effect of redescribing the current location. All we need to do is call the print location routine once the word *Look* or its abrevation L have been typed in.

Here it is in Assembley format.

```
Z2      DEFM "L "       ; the word 'L' is equivalent
                        ; by 2 spaces.
Z3      DEFM "LOOK"

        LD HL,Z2
        CALL THREE      ; 3 characters long
        JP Z,PLOC       ; if found jump to PLOC
        LD HL,Z3
        CALL FIVE       ; 5 characters long
        JP Z,PLOC       ; if found jump to PLOC
```

Since most words in an adventure game are only three, four or five characters long, I have written small routines which save you from loading B with the length of the string. If length of string is three then.

CALL THREE

If it's four then.

CALL FOUR

and if it's five.

CALL FIVE

However, any other lengths are handled by

LD B, length followed by CALL FIND

Next week we shall look at the *Get*, *Drop* and *Inventory* routines.

```
;
;
;  Input routine:
;
;  A buffer is created
;  which stores the
;  information being
;  typed in
;
;
T_BUFF  DEFS 32
INPUT   LD   B,5
        CALL PRINT
TM2     XOR  A
[illegible]
```

Safely saved

***Frances Cameron** shows you how to verify your microdrive programs*

There's no *Verify* on the QL. I suppose it's just a sign of cheerful Sinclair optimism assuming that all microdrive *Saves* will be safe. They are not, and you don't want to lose any of your precious programs, so here's what you do.

When you are ready to *Save*, have a formatted microdrive cartridge in each of the slots, then:

```
save mdv1-programe
copy mdv1-programe to mdv2-programe
copy mdv2-programe to scr
```

and a screen Listing will show up in green ink on black paper. (Yes, do type in "scr". It's quite correct.)

As you can see, there is only one real *Save*. When you copy this from mdv1 to mdv2 it's like doing a *Verify*. You won't get a copy unless there's been a good save. Copying from mdv2 to the screen is a double-check — and it takes very little time. There's no need to wait for the red light to go out before typing in the next instruction. The cursor stops flashing when the computer is busy so, as soon as the cursor re-appears, it is safe to type in and *Enter* the next command.

Here's a short program to try it out on. It doesn't do very much, but it's fun to watch and it'll go on quite happily on *F2 TV* until you've had enough. You can *Break* to finish.

Line 130 clears the workspace at the bottom of the screen as well as ensuring a completely free display area. (An ordinary *CLS* can leave unexpected traces behind it.)

Lines 150 to 200 are an example of QL Superbasic. Lines 160 to 190 go on repeating until you do something to stop them!

Line 160 puts a border four units wide round the display panel and runs through 256 different colour samples. It's quite effective on a TV screen, so don't be put off by the injunctions in the Beginner's Guide.

The *Beep* command doesn't work with the elegant simplicity of the Spectrum. It's better at good space invader noises. The program's command just gives a token background effect.

When you've typed this in, just *Save* to mdv1. Then *Copy* from mdv1 to mdv2 and, for a final conformation, *Copy* from mdv2 to the screen. If you don't want to keep both copies, then *Delete* one of them in the usual way.

```
100 REMark ========================
110 REMark         "sunburst"
120 REMark ========================
130 CLS#0 : CLS#2
140 PAPER 0 : CLS
150 REPeat sunburst
160     BORDER 6, RND(255)
170     INK RND(1 TO 7)
180     LINE 80,60 TO RND(170),RND(100)
190     BEEP 165, RND(20)
200 END REPeat sunburst
210 REMark ========================
220 REMark copyright francis cameron
230 REMark        11 june 1984
240 REMark ========================
```

Safely saved

***Frances Cameron** shows you how to verify your microdrive programs*

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and a screen Listing will show up in green ink on black paper. (Yes, do type in "scr" It's quite correct.)

As you can see, there is only one real *Save*. When you copy this from mdv1 to mdv2, it's like doing a *Verify*. You won't get a copy unless there's been a good save. Copying from mdv2 to the screen is a double-check — and it takes very little time. There's no need to wait for the red light to go out before typing in the next instruction. The cursor stops flashing when the computer is busy so as soon as the cursor re-appears it is safe to type in and *Enter* the next command.

Here's a short program to try it out on. It doesn't do very much, but it's fun to watch and it'll go on quite happily on *F2 TV* until you've had enough. You can *Break* to finish.

Line 130 clears the workspace at the bottom of the screen as well as ensuring a completely free display area. (An ordinary *CLS* can leave unexpected traces behind it.)

Lines 160 to 200 are an example of QL Superbasic. Lines 160 to 160 go on repeating until you do something to stop them!

Line 160 puts a border four units wide round the display panel and runs through 256 different colour samples. It's quite effective on a TV screen, so don't be put off by the injunctions in the Beginner's Guide

The *Beep* command doesn't work with the elegant simplicity of the Spectrum. It's better at good space invader noises. The program's command just gives a token background effect.

When you've typed this in, just *Save* to mdv1. Then *Copy* from mdv1 to mdv2 and, for a final conformation, *Copy* from mdv2 to the screen. If you don't want to keep both copies, then *Delete* one of them in the usual way.

```
100 REMark ========================
110 REMark        "sunburst"
120 REMark ========================
130 CLS#0 : CLS#2
140 PAPER 0 : CLS
150 REPeat sunburst
160    BORDER 6, RND(255)
170    INK RND(1 TO 7)
180    LINE 80,60 TO RND(170),RND(100)
190    BEEP 165, RND(20)
200 END REPeat sunburst
210 REMark ========================
220 REMark copyright francis cameron
230 REMark        11 june 1984
240 REMark ========================
```

All clear for take-off

Jason Orbaum and Geoffrey Campbell continue their series on assembley programming

When we finished last week you should have had a general idea of the structure and flow of the rogram. This week sees the first part of the program presented, with another flowchart. This shows the theory put into practice to produce a simple, yet addictive, game

The first commands of the program are known as *Assembler Directives*; they tell the assembler to do something and are not part of the program The *EQU* command here is used to set a *Constant* To take the first line as an example, whenever the word *Score* is found, the number substituted will be decimal 2000 This is an address halfway down graphics page one Unless the program is to use the Hi-Res pages (which this one does not), they are an ideal place to store numbers because the Dragon does not change them under normal circumstances.

You will have noticed that a gap of two addresses is left between *Score* and *Flag* whilst a gap of one is left between *Flag* and *Ship* This is because *Flag* needs to be only a one-byte number as it will only contain a number in the page 0 to 255 *Score*, however may contain numbers higher than this (depending on the player!) and so needs to be a two-byte number

START OF GAME

This initialises variables that must not be reset at the beginning of each wave. It does so by loading a register with the number to be stored and then storing it at the appropriate address

START OF WAVE

This sets up the variables that have to be reset every wave (namely the *Flag* and the position of the plane) Routine CLS0 stores a character 128 (black square) in every location on the text screen, and in so doing clears it. Make sure that you understand how the loop is working as this routine is a good example of a *Block* fill routine (ie, a routine that fills a block of memory with a set value).

PUT UP BUILDINGS

This is possibly the most complicated routine that we will look at this week which is why it has a separate flowchart.

Having erected the buildings we come to the beginning of the main program (labelled *Move*) The first thing that this routine does is to check to see if the plane has reached the bottom-right of the screen and if it has, control goes to *Fin* (covered next week) The program adds one to the plane position, so moving it along and down the screen, and looks to see what is in the new position. If it is a black space (ie, it is not a building) then the program branches on to the *Move Bomb* routine at *Past 1*

CRASHED

If, however, the program finds something at the location then the plane has crashed and the program must notify the user. The subroutines called by this routine will be covered in detail next week but, in brief, they invert the screen, make a crashing sound, re-invert the screen, remove any green squares (for reasons covered next week), make another crashing sound, and print the score respectively

The next few lines utilise one of the more useful ROM routines, jumping to the subroutine at hex 8006 ($8006) polls the keyboard and returns the ASCII code of the character being pressed in accumulator A. If this is zero (ie no key pressed) then the program re-polls the keyboard until a key is pressed When a key is pressed, the program checks to see if it is an apostrophe and if it is then the program ends, otherwise it re-starts

The Basic equivalent of this routine is as follows

```
1F41              *
1F41              *    BLITZ V2.0
1F41              *
1F41              *    G. CAMPBELL
1F41              *    & J. ORBAUM
1F41              *
1F41              * (c) 24/12/1983
1F41              *
1F41   07D0 SCORE  EQU   2000
1F41   07D2 FLAG   EQU   2002
1F41   07D3 SHIP   EQU   2003
1F41   07D5 BPOS   EQU   2005
1F41   07D7 WAVE   EQU   2007
1F41   07D9 INC    EQU   2009
1F41   07DA LINE   EQU   2010
1F41              *
1F41              * START OF GAME
1F41              *
1F41 CC0901 BEGIN1 LDD    #$0901
1F44 FD07D7        STD    WAVE
1F47 8601          LDA    #1
1F49 B707D9        STA    INC
1F4C CC0000        LDD    #0
1F4F FD07D0        STD    SCORE
1F52              *
1F52              * START OF WAVE
1F52              *
1F52 8600   BEGIN  LDA    #0
1F54 B707D2        STA    FLAG
1F57 CC0403        LDD    #$403
1F5A FD07D3        STD    SHIP
1F5D 8E0400 CLS0   LDX    #$400
1F60 CC8080        LDD    #$8080
1F63 ED81   LOOP1  STD    ,X++
1F65 8C0600        CMPX   #$600
1F68 25F9          BLO    LOOP1
1F6A              *
1F6A              * PUT UP BUILDINGS
1F6A              *
1F6A 108E001D      LDY    #29
1F6E B60112 LOOP4  LDA    $112
1F71 8403          ANDA   #3
1F73 3402          PSHS   A
1F75 C610          LDB    #16
1F77 3D            MUL
1F78 CB8F          ADDB   #143
1F7A 3502          PULS   A
1F7C BB07D9        ADDA   INC
1F7F 8E05FF        LDX    #$5FF
1F82 3420          PSHS   Y
1F84 301F   DLOOP  LEAX   -1,X
1F86 313F          LEAY   -1,Y
1F88 26FA          BNE    DLOOP
1F8A 3520          PULS   Y
1F8C E784   LOOP2  STB    ,X
1F8E 3088E0        LEAX   -32,X
1F91 4A            DECA
1F92 26F8          BNE    LOOP2
1F94 170137        LBSR   RANG
1F97 170126        LBSR   PAUSE
1F9A 313F          LEAY   -1,Y
1F9C 26D0          BNE    LOOP4
1F9E BE07D3 MOVE   LDX    SHIP
1FA1 8C05FF        CMPX   #$5FF
1FA4 102701CD      LBEQ   FIN
1FA8 3001          LEAX   1,X
1FAA BF07D3        STX    SHIP
1FAD A684          LDA    ,X
1FAF 8180          CMPA   #128
1FB1 271E          BEQ    PAST1
1FB3              *
1FB3              * CRASHED!!!
1FB3              *
1FB3 170147        LBSR   INV
1FB6 170115        LBSR   BANG
1FB9 170141        LBSR   INV
1FBC 170157        LBSR   GREEN
1FBF 17010C        LBSR   BANG
1FC2 1701FD        LBSR   SCR
1FC5 BD8006 LOOP3  JSR    $8006
1FC8 27FB          BEQ    LOOP3
1FCA 8127          CMPA   #39
1FCC 1026FF71      LBNE   BEGIN1
1FD0 39            RTS
1FD1              *
1FD1              * MOVE BOMB
1FD1              *
1FD1 B607D2 PAST1  LDA    FLAG
1FD4 8101          CMPA   #1
1FD6 2630          BNE    PAST2
1FD8 BE07D5        LDX    BPOS
1FDB 308820        LEAX   32,X
1FDE BF07D5        STX    BPOS
1FE1 A684          LDA    ,X
1FE3 8180          CMPA   #128
1FE5 2709          BEQ    PAST4
1FE7 FC07D0        LDD    SCORE
1FEA C30001        ADDD   #1
1FED FD07D0        STD    SCORE
1FF0 BE07D5 PAST4  LDX    BPOS
1FF3 862A          LDA    #42
1FF5 A784          STA    ,X
1FF7 8680          LDA    #128
1FF9 3088E0        LEAX   -32,X
1FFC A784          STA    ,X
1FFE FC07D5        LDD    BPOS
2001 108305E       CMPD   #1505
2005 25BC          BLO    PAST2
2007 8600          LDA    #0
2009 B707D2        STA    FLAG
200C BE07D5        LDX    BPOS
```

```
10 A$=INKEY$: IF A$="" THEN GOTO 10
20 IF A$="" THEN END ELSE RUN
```

You will see the routine used a lot in the series, and also a variant of it covered later on in *Scan Keyboard*.

MOVE BOMB

The first thing that this routine does is check whether or not a bomb is in the air by looking at the contents of FLAG. A flag is simply a variable that is set (greater than 0) when a condition is satisfied, ie, a bomb is dropping, and is clear (0) when the condition is not satisfied.

If a bomb is dropping, than 32 is added to its position (ie, it moves down one line) and the contents of the new position are checked. If the space is not blank then the score has one added to it. At *PAST4* the bomb is plotted at its new position, and the old one is than plotted over with a black square. The program does not do it in this order for convenience, but to produce a flicker-free image.

At address *$1FFE* the program checks to see whether the bomb has reached the bottom of the screen. If it has, then the flag is cleared, and the bomb erased.

SCAN KEYBOARD

Here is the aforementioned variation on the earlier routine. Suffice it to say that the first six lates clear the buffers so that auto-repeat is achieved, then the keyboard is rolled and if nothing has been pressed, the program branches to *NOPRES* where a pause is executed. This pause takes as much time as the ROM routine takes if a key is pressed. This ensures that the plane does not slow down when a key is pressed.

If a key has been pressed, then a check is made to see if a bomb is dropping and if one is not, then a new bomb is released with a zapping sound (*LBSR ZAP*).

At *NOKEY* the plane is re-plotted. The and character is a space so that the plane erases itself. A call is next made to *HUMM* which, as its name suggests, hums for a length proportional to the contents of wave (so that the hum rises in pitch as the game progresses and gets faster).

If the contents of wave are greater than three, and the contents of the timer (one way of achieving a pseudo-random number between 0 and 255) is less than the height of the green buildings (*INC*), the program scrolls the buildings; otherwise control is returned to *Move*.

SCROLL BUILDINGS

This routine scrolls the buildings upwards. 0 offers samples of two routines, a block move, and a block copy (although the latter is not necessary for the program).

A detailed description of their workings, along with the workings of the subroutines, the subroutines themselves and a Basic loader for the program will be given next week.

```
200F 8680            LDA   #128
2011 A784            STA   ,X
2013           *
2013           * SCAN KEYBOARD
2013           *
2013 CCFFFF PAST2    LDD   #$FFFF
2016 FD0150          STD   $150
2019 FD0152          STD   $152
201C FD0154          STD   $154
201F FD0156          STD   $156
2022 FD0158          STD   $158
2025 AD9F            JSR   [$A006]
2028 1027012E        LBEQ  NOPRES
202C B607D2          LDA   FLAG
202F 8101            CMPA  #1
2031 2711            BEQ   NOKEY
2033 17015A          LBSR  ZAP
2036 8601            LDA   #1
2038 B707D2          STA   FLAG
203B FC07D3          LDD   SHIP
203E 830001          SUBD  #1
2041 FD07D5          STD   BPOS
2044 BE07D3 NOKEY    LDX   SHIP
2047 301E            LEAX  -2,X
2049 8680            LDA   #128
204B A780            STA   ,X+
204D 863D            LDA   #61
204F A780            STA   ,X+
2051 4C              INCA
2052 A784            STA   ,X
2054 17000D          LBSR  HUMM
2057 B607D9          LDA   INC
205A 8103            CMPA  #3
205C 1025FF3E        LBLO  MOVE
2060 B60113          LDA   $113
2063 B107D9          CMPA  INC
2066 1022FF34        LBHI  MOVE
206A           *
206A           * SCROLL BUILDINGS
206A           *
206A 8600            LDA   #0
206C B707DA          STA   LINE
206F FC07D3          LDD   SHIP
2072 83002A FIND     SUBD  #32
2075 1083040A        CMPD  #1024
2079 2505            BLO   FFAST
207B 7C07DA          INC   LINE
207E 20F2            BRA   FIND
2080 7C07DA FFAST    INC   LINE
2083 B607DA          LDA   LINE
2086 108E0420        LDY   #1056
208A 8E0400          LDX   #1024
208D               FPLOOP
208D EC81            LDD   ,X++
208F 31A820          LEAY  32,Y
2093 4A              DECA
2094 26F7            BNE   FPLOOP
2096 ECA1          SCPLOP
                     LDD   ,Y++
2098 EDA1            STD   ,X++
209A 108C0600        CMPY  #$600
209E 25F6            BLO   SCPLOP
20A0 8E05C0          LDX   #1472
20A3 108E05E0        LDY   #1504
20A7 EC81          COPY
                     LDD   ,X++
20A9 EDA1            STD   ,Y++
20AB 108C0600        CMPY  #$600
20AF 25F6            BLO   COPY
20B1 BE07D5          LDX   BPOS
20B4 3088E0          LEAX  -32,X
20B7 BF07D5          STX   BPOS
20BA 170011          LBSR  BANG
20BD 16FEDE          LBRA  MOVE
```



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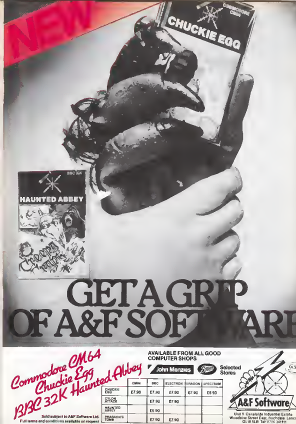
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In character

***Mark Lawrence** completes his two-part machine-code graphics utility for the BBC*

Before you type in the second part of this graphics character design program, load in the first part of the listing, printed last week

Before loading in part use switch the machine off and then on, and then enter *page=page+3000*

The program allows you to design characters, rotate them clockwise by 90 degrees, flop the character from left to right, scroll it invert it and save and load it from tape

When you have typed in both parts of the listing save the code before attempting to run it.

Now run the program and if it assembles correctly save the code by entering "Save "char" EOO +604 EOO then enter call &EOO If you have typed it in correctly you should see an 8×8 grid, the user definable graphics set and a menu. The user definable graphics characters are printed alongside the grid, but since they are usually undefined when you first switch on it may appear that there is nothing there

The menu lists the keys to be used. If you press Q or P (to store your design or pick up a character) the message 'which Character' will appear The characters are numbered from 1 to 9 and A to W inclusive so character 224 is 1, character 225 is 2 and character 233 is A. Pressing S or L will save or load the complete set of characters. To use your designs in your own program enter *"load"* either as a direct command or as part of your program. This will load your designs into the character area. To print your character use *Print* N. *Chr*$(x) where x is the character code, ranging from 224 to 255 If you are not sure which character code applies to your design enter *For* N=224 TO 255.*Print* N, *Chr$(N).Next* N. This will print out the characters with the relevant code alongside

In addition to the keys listed in the menu, pressing escape will return you to Basic. Enter *Call* &EOO to return to the program.

```
2990CPX #4
3000BEQ NOUP
3010JSR PLUP
3020DEC X1
3030 NOUP RTS
3040 DO LDX X1
3050CPX #13
3060BEQ NODO
3070JSR PLUP
3080INC X1
3090 NODO RTS
3100.LE LDY Y1
3110CPY #3
3120BEQ NOLE
3130JSR PLUP
3140DEC Y1
3150 NOLE RTS
3160.RI LDY Y1
3170CPY #12
3180BEQ NORI
3190JSR PLUP
3200INC Y1
3210 NORI RTS
3220.PSUB JSR SWAP
3230LDX #5
3240 L2 LDY #11
3250.L1 JSR AT
3260TXA
3270PHA
3280TYA
3290PHA
3300LDA #135
3310JSR &FFF4
3320CPX #132
3330CLC
3340BNE D4
3350SEC
3360.D4 ROR TEMP+8
3370PLA
3380TAY
3390PLA
3400TAX
3410DEY
3420CPY #3
3430BNE L1
3440LDA TEMP+8
3450STA TEMP-5,X
3460INX
3470CPX #13
3480BNE L2
3490JSR SWAP
3500RTS
3510 AD LDX #5
3520LDA TEMP+0,X
3530JSR &FFEE
3540DEX
3550BNE AD+2
3560JSR CHAR
3570JSR &FFE0
3580CLC
3590SBC #48
3600CLC
3610CMP #10
3620BMI OK
3630CLC
3640SBC #8
3650 OK CLC
3660ASL A
3670ASL A
3680ASL A
3690RTS
3700 PUT JSR PSUB
3710JSR AD
3720STA LB+1
3740LDX #8
3740LDA TEMP X
3750 LB STA &C00,X
3760INX
3770CPX #8
3780BNE LB-3
3790JSR SET
3800RTS
3810 INVERT JSR SWAP
3820LDX #5
3830LDY #4
3840.IL JSR AT
3850TXA
3860PHA
3870TYA
3880PHA
3890LDA #135
3900JSR &FFF4
3910LDA #224
3920CPX #128
3930BNE DI
3940LDA #228
3950 DI JSR &FFEE
3960PLA
3970TAY
3980PLA
3990TAX
4000INY
4010CPY #12
4020BNE IL
4030INX
4040CPX #13 4050BNE INVERT+5
4060JSR SWAP
4070RTS
4080 GSUB JSR SWAP
4090LDX #5
4100LDY #11 4110JSR AT
4120LDA #224 4130LSR TEMP 5,X
4140BCC GO
4150LDA #228
4160 GO JSR &FFEE
4170DEY
4180CPY #3
4190BNE GSUB+7
4200INX
4210CPX #13
4220BNE GSUB+5
4230JSR SWAP
4240RTS
4250 PICK JSR AD
4260STA PLB+1
4270LDX #0
4280.PLB LDA &C00,X
4290STA TEMP,X
4300INX
4310CPX #8
4320BNE PLB
4330JSR SET
4340JSR GSUB
4350RTS
4360 UPS JSR PSUB
4370LDY TEMP
4380LDX #0
4390LDA TEMP+1,X
4400STA TEMP,X
4410INX
4420CPX #7
4430BNE UPS+8
4440STY TEMP+7
4450JSR GSUB
4460RTS
4470 DOS JSR PSUB
4480LDY TEMP+7
4490LDX #7
4500LDA TEMP 1,X
4510STA TEMP,X
4520DEX
4530BNE DOS+8
4540STY TEMP
4550JSR GSUB
4560RTS
4570 LS JSR PSUB
4580LDX #8
4590LDA TEMP-1,X
4600ASL A
4610ROL TEMP-1,X
4620DEX
4630BNE LS+5
4640JSR GSUB
4650RTS
4660 RS JSR PSUB
4670LDX #8
4680LDA TEMP 1,X
4690LSR A
```

```
4700ROR TEMP 1,X
4710DEX
4720BNE RS+5
4730JSR GSUB
4740RTS
4750 ROT JSR PSUB
4760JSR SWAP
4770LDY #11
4780 LS LDX #12
4790 LE JSR AT
4800TXA
4810PHA
4820TYA
4830PHA
4840STA TEMP+8
4850LDA #13
4860CLC
4870SBC TEMP+8
4880TAX
4890LDA #224
4900LSR TEMP 1,X
4910BCC ROV
4920LDA #228
4930 ROV JSR &FFEE
4940PLA
4950TAY
4960PLA
4970TAX
4980DEX
4990CPX #4
5000BNE LE
5010DEY
5020CPY #3
5030BNE LS
5040JSR SWAP
5050RTS
5060 MIR JSR PSUB
5070JSR SWAP
5080LDX #12
5090 L8 LDY #11
5100 L7 JSR AT
5110LDA #224
5120ASL TEMP 5,X
5130BCC MOV
5140LDA #228
5150 MOV JSR &FFEE
5160DEY
5170CPY #3
5180BNE L7
5190DEX
5200CPX #4
5210BNE L8
5220JSR SWAP
5230RTS
5240 CONT LDA #0
5250LDX #12
5260STX BLO+11
5270LDY #INT(BLO/256)
5280LDX #(BLO-256*INT(BLO/255))
5290JSR &FFDD
5300JSR SET
5310RTS
5320 SA LDA #0
5330STA CONT+1
5340JMP CONT
5350 LO LDA #255
5360STA CONT+1
5370JMP CONT
5380 BLO BRK BRK BRK BRK BRK BRK BRK BRK BRK BRK BRK BRK BRK BRK BRK BRK
 BRK BRK
5390 TEMP BRK BRK BRK BRK BRK BRK BRK BRK
 BRK
5400PK BRK BRK BRK BRK BRK BRK BRK BRK BRK
5410 I1 BRK
5420 X1 BRK
5430 FLAG BRK
5440 STORE
5450] NEXT
5460!STORE=RETCARAME
5470A$= HT[HW (CHR$(28)+CHR$(1) CHR$(3)
)!B(TEMP 8) A$
5480FORN%=0 TO 42 READA% ?(STORE 8+N%)
A% NEXT
5490DATA255,128,128,128,128,128,128 128
128,128,128,128,128,128,128,128,255,0,0
0,0,0,0,0,128,0,0 0,0,0,0,0,255,245,255
,255,255,255,255 255,255 66,30,24,24,36,
80,255
5500A$= CHR$(17)+CHR$(129)+CHR$(27)+CHR$
31+CHR$(31)+CHR$(10)+CHR$(2)+CHR$(0)+
GENERATOR +CHR$(31)+CHR$(30)+CHR$(14)+CH
R$(17)+CHR$(130)+CHR$(17)+CHR$(3)+   USE
THE FOLLOWING KEYS, +CHR$(13)+CHR$(13)+
 CURSOR KEYS TO MOVE CURSOR
5510A$= A$+CHR$(13)+  Z TO CHANGE MODE (
P D  UNP) )+  +CHR$(13)+  Q TO STORE DES
IGN  +CHR$(13 +  P TO PICK UP  CHR$(0)
 +CHR$(13)+  S TO SAVE  +CHR$(0)+"S TO
TAPE  +CHR$(13)+  I TO LOAD " CHR$(0)+
S FROM TAPE  +CHR$ 13
5520A$=  R TO ROTATE  +CHR$(0)+   CHR$
(13)+  M TO MIRROR  +CHR$(0)+   +CHR$(
1)+  I 1  INVERT  +CHR$(0)+   +CHR$(13)+
(,0,L,M TO SCROLL  +CHR$(0)+  (U/D/L R)
 +CHR$(127)
5530A!STORE+?/1 A$ !STORE+256)=0$
5540A= (BLO+19)-256*INT((BLO+19)/256) +
256*INT((BLO+19)/256)
5550FORN% 0   D BLO+15 READ A% ?N% A%
NEXT
5560DATA.. 7% 0,&C,0,0,0,&L,0,0,0,&C,0,
0,0,&0 0,0,0,13
```

Cryptic codes

Protect your messages from prying eyes with ***Peter Bilbrough's*** *program for producing secret codes*

Considerable interest has been shown recently in using home computers to encipher or decipher information, either for amusement or to safeguard data.

Often the ciphers proposed are too simple to deserve serious attention. At the other extreme some methods offering great security have been suggested which are so complex as to be beyond the scope of the average home micro

The program here has been designed to avoid the pitfalls of both extremes It was written for the Commodore 64 but can be adapted to run on other machiens. If properly used then it has the potential to provide what is arguably an absolute level of cryptographic security

The program is broken into clear subroutines which are each given Rem statements to identify their purpose But before describing getting into the program it may be worth giving some background information on cryptology

Any code considered for serious use should meet certain criteria.

1) The system should be materially, if not mathematically, indecipherable

2) It should lend itself to automatic encipherment.

3) The resultant code — called the ciphertext — should not be unduly longer than the original plain text.

4) Any key used must be one which is easily remembered and flexible enough to be changed at will.

5) The cipher must be easy to operate

6) It must not be liable to produce errors or unduly aggravate any errors which do arise.

7) The system must be so designed that knowledge of the program will not automatically compromise the cipher

There are two ways of enciphering, sometimes both being applied in conjunction. Transposition — where the letters remain the same but their positions are changed, and substitution — where the position of the letters remains the same but the letters themselves are replaced with others

The *PCW* program incorporates substitution ciphers Single alphabet substitution gives very little security so most substitution ciphers use some form of key This is repeated along the length of the plaintext. The product of each key letter and text letter, calculated by one of several methods, becomes the cipher letter This system is called 'Polyalphabetic

This type of code has one serious weakness — if the key is of finite length then, when the same letters of the plaintext are enciphered by the same length of the key, that part of the resulting ciphertext will also repeat This gives clues as to keyword length and often results in discovery of the key

Obviously, the security of the system will usually increase with the key length. Indeed the more complex polyalphabetic substitution ciphers include a means of suppressing this repetition.

The listing given here was a combination of two of these more advanced methods — interrupted key and aperiodic key and this is what gives this cipher its great security

An aperiodic key is used to re-encipher the text obtained from the first enciphering method. Ideally this key should be completely random but this is not really feasible for home computers. An effective option and can be achieved by pseudo-random generation.

The plaintext is first enciphered by using an interrupted keyword. The keyword returns to the start when its letters are used up, as with the more simple methods. But it also returns when it meets a letter chosen by the user. This second 'random' return, based solely on the plaintext makes it a very secure cipher

The method of operation has been kept simple. A keyword and interrupter letter are fed into the computer for the first stage encipherment. A seed number is then chosen. This will be used to produce a sequence of letters for the re-encipherment which repeats identically whenever a particular number is selected but which is individual to that number. Not only does the use of a seed give access to almost unlimited combinations but it does away with the need to store random characters for feeding into the computer

The program will put into code up to 250 characters Each new text or block of 250 characters will need a new seed number if full security is to be maintained. Having said thus, even the repeated use of sequences using the same 'seed will still give a good degree of security

One advantage of using keywords as well as seed numbers in encription is that the need to repeat the seed is greatly reduced. People having different keys could use the same seed number and yet would produce completely different ciphertext results.

Not counting the time necessary to input the text, it takes nearly two minutes to encipher or decipher the full 250 characters. This compares favourably with about 270 characters dealt with in the same time by conventional electrical cryptographic machines

Mention should be made of the use of the letter 'X' This is generated in enciphering each time the space bar is hit when typing in the plain-text. When the text is deciphered it is converted back into a space In this way the plain-text is reproduced word by word rather than in a continuous line or blocks of five Obviously the letter will also be used as a normal character in some words — in which case it will be left out in the deciphering However, it only appears on average twice in 1,000 characters and the message should still remain intelligible. As an alternative the letters ks could be used, ie, toxic would become toksic

To give some idea of the security of the program two blocks on coded text are shown. The letter X was used throughout with the seed numbers 1 00000001 for Block One and 1 00000002 for Block Two To show encription as a 'worst case' the codeword chosen was XXXXX and the interrupter letter A.

Block 1

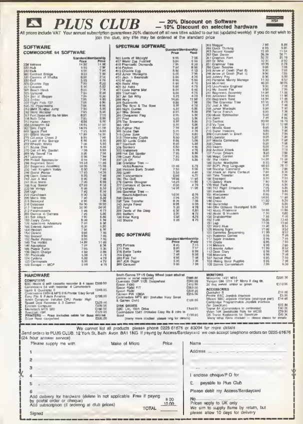
```
HQHUR FSCEP IYMQH GNOFW SAOCK PNMLP LIRHY JJRNM LQFJM SZMIM SLAPK WOCCM DHPTP
TPI LHVRU MPQTM FNEOQ QYHAK CMWMP ACPEJ VROHQ VUPHG JVPIA GORHP CKQLD ZQFOM
MZWFYL PIYJB IQPOQ GVYYQ GWTCM CUEON IPJYK KEJHO ISCXM IGFRE LMSYW CDKZE AASLO
KFQSIQRDFV LDJFE XSROO ZWZLE AWJCS HNFHQ LWYXK PHRKH QZRMB
```

Block 2

```
HSNLM JKCWD WPAAN QFZVI PNEHY NJKXL FHDEE HLAOP ORPZQ BNHBU AHNPY DMPUF APGSTCG
DHH WKPIF ZPQGN RNBVI QOERN OLXBK KKBVK APELM VOZEF WVNMR SHGSB HVPUH CDLINEXWE
F MXZZA GLCPH SQKRZ OAPEP LMZYR FIXNW ONKOH FSOBM IIDHV VMOSU LQSDK SMHFI PDWUO
HPSEF OBHGS XJRXO LEZOZ NLQFP FFYKM UFIDU EGLPR NXBKM PEWYQ
```

Commodore 64

```
10 REM ************************************
20 REM *SUPERENCIPHERED INTERRUPTED*
30 REM *     PERIODIC KEY CIPHER      *
40 REM *              BY              *
50 REM *      PETER J BILBROUGH       *
60 REM *          JULY 1984           *
70 REM ************************************
80 REM ***MENU***
90 POKE53280,0:POKE53281,0
100 PRINT CHR$(147)
110 PRINTTAB(  )"     CIPHER SECURITY PROGRAMME"
120 PRINTTAB(12)"DO YOU WISH TO"
130 PRINTTAB(12)"1 ENCIPHER TEXT"
140 PRINTTAB(12)"2 DECIPHER TEXT"
150 PRINTTAB(12)"3 END PROGRAMME"
160 PRINTTAB(12)"SELECT NUMBER"
170 GETA$:IFA$=""THEN170
180 IFA$="1"THEN510
190 IFA$="2"THEN1010
200 IFA$<>"3"THENGOSUB5010:GOTO170
210 END
500 REM ***INPUT PLAINTEXT***
510 GOSUB2010
520 PRINT"TYPE UPTO";N;"CHARACTERS OF PLAINTEXT"
530 PRINT"ALWAYS END BELOW A MARKER. USE SPACE
540 PRINT"BAR BETWEEN WORDS AND TO REACH MARKERS."
550 PRINT"AUDIBLE WARNING IS GIVEN 5 CHARACTERS"
560 PRINT"BEFORE MAXIMUM PERMITTED TEXT LENGTH."
570 PRINT"    |    |    |    |    |    |    |"
580 GETG$:IFG$=""THEN580
590 IFG$=" "THENG$="%"
600 G=ASC(G$)
610 IFG>47ANDG<58ORG>64ANDG<91THENMS$=MS$+G$:PRINTG$;:L=L+1
620 IFG=20ANDL>0THENPRINTG$;:L=L-1:MS$=LEFT$(MS$,L)
630 IFG=13ANDLEN(MS$)=N-5THENGOSUB6010
640 IFG=13ANDLEN(MS$)=5*INT(LEN(MS$)/5)THENGOSUB6010:GOTO660
650 IFG<>13ORL<5THEN580
660 PRINT:PRINT"     THE TEXT IS NOW BEING ENCIPHERED"
670 GOTO3010
1000 REM ***INPUT CIPHERTEXT***
1010 GOSUB2010
1020 PRINT"TYPE UPTO";N;"CHARACTERS OF CIPHERTEXT"
1030 PRINT"WITHOUT SPACING. ALWAYS END BELOW A
1040 PRINT"MARKER. AUDIBLE WARNING IS GIVEN 5
1050 PRINT"CHARACTERS BEFORE MAXIMUM PERMITTED
1060 PRINT"TEXT LENGTH."
1070 PRINT"    |    |    |    |    |    |    |"
1080 GETG$:IFG$=""THEN1080
1090 G=ASC(G$)
1100 IFG>47ANDG<58ORG>64ANDG<91THENMS$=MS$+G$:PRINTG$;:L=L+1
1110 IFG=20ANDL>0THENPRINTG$;:L=L-1:MS$=LEFT$(MS$,L)
1120 IFG=13ANDLEN(MS$)=N-5THENGOSUB6010
1130 IFG=13ANDLEN(MS$)=5*INT(LEN(MS$)/5)THENGOSUB6010:GOTO1150
1140 IFG<>13ORL<5THEN1080
1150 PRINT:PRINT"     THE TEXT IS NOW BEING DECIPHERED"
1160 GOTO4010
2000 REM ***CALCULATION OF KEY***
2010 PRINTCHR$(147)
2020 PRINT"GIVE DESIRED TEXT LENGTH IN MULTIPLES
2030 PRINT"OF FIVE (NOT TO EXCEED 250 CHARACTERS)"
2040 INPUTN
2050 IFN>250THENPRINT"??":GOSUB5010:GOTO2040
2060 IFN/5<>INT(N/5)THENPRINT"??":GOSUB5010:GOTO2040
2070 PRINT"INPUT A KEY OF AT LEAST FIVE CHARACTERS"
2080 PRINT"IN LENGTH (USING NO SPACES) IT WILL BE
2090 PRINT"USED FOR FIRST STAGE ENCIPHERMENT"
2095 INPUTQ$
2100 IFLEN(Q$)<5THENPRINT"??":GOSUB5010:GOTO2095
2110 PRINT"INPUT A LETTER (PREFERABLY A,E,I,N,O,R,
2120 PRINT"S OR T). IT WILL BE USED TO GENERATE"
2130 PRINT"RANDOM REPETITION OF THE KEY BASED ON THE
2140 PRINT"CONTENTS OF THE PLAINTEXT"
2150 INPUTK$
2160 IFLEN(K$)<>1THENPRINT"??":GOSUB5010:GOTO2150
2170 PRINT"INPUT A NUMBER UPTO 9 DIGITS LONG. IT
2180 PRINT"WILL BE USED TO SUPERENCIPHER THE FIRST"
2190 PRINT"STAGE ENCIPHERMENT PRODUCED BY THE KEY
2200 PRINT"TYPED IN EARLIER
2210 INPUTR
2220 IFR>0THENR=SQR(R)+ABS(SIN(R)):GOTO2220
2230 PRINT CHR$(147)
2240 DIMS$(255)
2250 PRINT:PRINT"CALCULATING SUPERENCIPHERMENT SEQUENCE":PRINT
2260 FORZ=1TON
2270 R=((R+R)^15)-INT((R+R)^15)
2280 V=INT(R*100)
2290 IFV>90THENV=V-10
2300 IFV<65THENV=V+25:GOTO2300
2310 S$(Z)=CHR$(V)
2320 PRINTCHR$(V)
2330 L$=L$+S$(Z)
2340 NEXTZ
2350 FORA=0TO750:NEXT
2360 PRINTCHR$(147):RETURN
3000 REM ***ENCIPHERING***
3010 P=P+1:IFP>LEN(Q$)THENP=1
3020 IFF$=K$THENP=1
3030 M=M+1
3040 IFM>LEN(MS$)THEN3160
3050 F$=MID$(MS$,M,1)
3060 F=ASC(F$)
3070 IFF<65THEN3120
3080 F=F+ASC(MID$(Q$,P,1))-65
3090 IFF>90THENF=F-26
3100 CD$=CD$+CHR$(F)
3110 GOTO3010
3120 F=F+ASC(MID$(Q$,P,1))-48
3130 IFF>57THENF=F-10:GOTO3130
3140 CD$=CD$+CHR$(F)
3150 GOTO3010
3160 P=0:M=0
3170 P=P+1:M=M+1
3180 IFM>LEN(CD$)THEN3300
3190 FF$=MID$(CD$,M,1)
3200 FF=ASC(FF$)
3210 IFFF<65THEN3250
3220 FF=FF+ASC(MID$(L$,P,1))-65
3230 IFFF>90THENFF=FF-26
3240 CV$=CV$+CHR$(FF)
3250 GOTO3170
3255 FF=FF+ASC(MID$(L$,P,1))-48
3260 IFFF>57THENFF=FF-10:GOTO3260
3280 CV$=CV$+CHR$(FF)
3290 GOTO3170
3300 PRINTCHR$(147)
3310 PRINT"     THE CIPHERTEXT IS -":PRINT
3320 V=0
3330 FORK=1TO5
3340 FORL=1TO5
3350 V=V+1
3360 PRINTMID$(CV$,V,1);
3370 IFV=LEN(CV$)THEN7010
3380 NEXTL
3390 PRINT" ";
3400 NEXTK
3410 GOTO3330
4000 REM***DECIPHERING***
4010 P=P+1
4020 M=M+1
4030 IFM>LEN(MS$)THEN4150
4040 F$=MID$(MS$,M,1)
4050 F=ASC(F$)
4060 IFF<65THEN4110
4070 F=F-ASC(MID$(L$,P,1))+65
4080 IFF<65THENF=F+26
4090 CD$=CD$+CHR$(F)
4100 GOTO4010
4110 F=F-ASC(MID$(L$,P,1))+48
4120 IFF<48THENF=F+10:GOTO4120
4130 CD$=CD$+CHR$(F)
4140 GOTO4010
4150 P=0:M=0
4160 P=P+1:IFP>LEN(Q$)THENP=1
4170 IFFF=ASC(K$)THENP=1
4180 M=M+1
4190 IFM>LEN(CD$)THEN4310
4200 FF$=MID$(CD$,M,1)
4210 FF=ASC(FF$)
4220 IFFF<65THEN4280
4230 FF=FF-ASC(MID$(Q$,P,1))+65
4240 IFFF<65THENFF=FF+26
4250 IFFF=91THENFF=160
4260 CV$=CV$+CHR$(FF)
4270 GOTO4160
4280 FF=FF-ASC(MID$(Q$,P,1))+48
4290 IFFF<48THENFF=FF+10:GOTO4290
4295 CV$=CV$+CHR$(FF)
4300 GOTO4160
4310 PRINT CHR$(147)
4320 PRINT"     THE PLAINTEXT IS -":PRINT
4330 PRINTCV$
4340 GOTO7190
5000 REM ***ERROR SOUND***
5010 POKE54295,0:POKE54296,15
5020 Q=54272:POKEQ+6,240
5030 POKEQ+1,4:POKEQ+5,0:POKEQ+4,33
5040 FORC=1000TO1005
5050 POKEQ+1,C/256:POKEQ,CAND255
5060 NEXTC
5070 POKEQ+4,0
5080 RETURN
6000 REM ***TEXT LENGTH WARNING***
6010 POKE54295,0:POKE54296,15
6020 Q=54272
6030 POKEQ+6,0:POKEQ+5,10:POKEQ+1,250
6040 POKEQ+3,90
6050 POKEQ+4,0:POKEQ+4,65
6060 POKEQ+4,35
6070 RETURN
7000 REM ***PRINTER OPTION***
7010 PRINT:PRINT:PRINT"   DO YOU WANT A PRINTED COPY (Y/N)"
7020 GETH$:IFH$=""THEN7020
7030 IF H$="N"THENRUN
7040 IF H$<>"Y"THENGOSUB5010:GOTO7020
7050 OPEN4,4
7060 V=0
7070 PRINT#4
7080 FORL=1TO5
7090 V=V+1
7100 PRINT#4,MID$(CV$,V,1);
7110 IFV=LEN(CV$)THEN7160
7120 NEXTL
7130 PRINT#4," ";
7140 NEXTK
7150 GOTO7070
7160 CMD4
7170 CLOSE4
7180 RUN
7190 PRINT:PRINT:PRINT"   DO YOU WANT A PRINTED COPY (Y/N)"
7200 GETH$:IFH$=""THEN7200
7210 IF H$="N"THENRUN
7220 IF H$<>"Y"THENGOSUB5010:GOTO7200
7230 OPEN4,4:CMD4
7240 PRINT#4,CV$
7250 CLOSE4
7260 RUN
```



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10.00
TOTAL
Signed
Name
Address
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£. payable to Plus Club
Please debit my Access/Barclaycard
No
Prices apply to UK only
We aim to supply items by return, but please allow 10 days for delivery

Open Forum is for you to publish your programs and ideas. Take care that the listings you send in are all bug-free. Your documentation should start with a general description of the program and what it does and then give some detail of how the program is constructed.

Inspector

on Oric/BBC

They are both versions of the same program and are a utility program designed to allow the user to examine the contents of memory in an easy to read fashion.

Although differing widely in length and style, both programs perform the same tasks, and result in the same screen format. Typically I use these programs to browse through the contents of *Rom* or, more commonly, to 'cheat' at adventure games, by finding out what words etc. the game will respond to.

Program notes

First load the program you wish to examine. Than load *Inspector* and run it. The limitations of the Oric mean that, without some fancy relocation techniques applied to the first program, *Inspector* will overwrite a small part of it.

On running, the program asks for the address of the first byte you wish to examine. This can be entered in decimal — ie, 3567, or in hex ie, #400. Pressing the spacebar takes you back to this input when the program is running in order to allow you to look elsewhere. Pressing CNTRL C will halt the porogram.

BBC

Oh, the joys of BBC Basic! To achieve the same results on the Beeb I didn't have to mess about with all those strings and so the program fits on just 5 lines.

First, *load the program you wish to examine at &EOO. Then type *Page* = (some value higher than EOO+ the length of the program+some for luck) and *Chain Inspector*. Answer EOO to the prompt (you don't need the &) and away you go. Pressing any key restarts the program, and *Escape* will stop it.

```
LIST
    1REM     BBC INSPECTOR
             Jeff Tullin 1984
    2
    3
   10INPUT'START ADDRESS IN HEX  ;ST$:ST
=EVAL("&"+ST$).
   20@%=5:PRINT~ST;' ';:@%=3:FOR B=0 TO
7:A=?(ST+B):PRINT~A;:NEXT:PRINT" ";:FOR
C=0 TO7:D=ST+C:D=?(D)
   30IF (D>31 AND D<127)VDU D:ELSE VDU46
   40NEXT:PRINT:ST=ST+8:IF INKEY$(2)<>""
THEN 10
   50GOTO20
>
    2 REM 'ORIC INSPECTOR
          by Jeff Tullin 1984"
   10
   20 INPUT'START ADDRESS  ,ST
   30 B$-HEX$(ST)
   40 IF LEN(B$)<5 THEN B$-B$+  '
   50 IF LEN(B$)<5 THEN B$=B$+  '
   60 IF LEN(B$)<5 THEN B$=B$+
   70 IF LEN(B$)<5 THEN B$=B$+  '
   80 B$-MID$(B$,2,4)
   90 PRINT B$.  ',
  100 FOR B=0 TO 7
  110 A=PEEK(ST+B) A$=HEX$(A)
  120 IF LEN(A$)<3 THEN A$=A$+  "
  130 IF LEN(A$)<3 THEN A$=A$+' "
  140 IF LEN(A$)<3 THEN A$=A$+' "
  150 A$=MID$(A$,2,2)
  160 IF B$-      THEN A$-'00
  170 IF A<16 THEN A$- 0 +LEFT$(A$,1)
  180 PRINT A$,  ';
  190 NEXT
  200 FOR C-0 TO 7
  210 D=ST+C D=PEEK(D)
  220 IF(D>32 AND D<91) OR (D>96 AND D<1
23) THEN PRINT CHR$(D);: GOTO 240
  230 PRINT'.';
  240 NEXT:PRINT
  250 E=FRE(' ')
  260 ST=ST+8
  270 IF KEY$<> ' THEN 20
  280 GOTO 30
```

Inspector
by Jeff Tullin

Cryonics Care

on Spectrum

This is a sort of follow up to "Long dimensional resurrection" published some months ago and is based on Sinclair principles in 1964, Robert C W Ettinger wrote a book called *The Prospect of Immortality* (Sidgwick and Jackson 1966, £1 25). In it, he suggested that shortly after the end of the lifetimes of those now living, science would have advanced sufficiently to make ageing reversable and death optional. People could reach this time by means of having their remains frozen.

Full instructions are incorporated within the game, but the basic idea is to set off mines under approaching cars. The game seems ridiculously easy when started, but difficulty soon builds up, and some dexterity and skill is needed to complete it.

Program notes

Lines 1 to 11	Are instructions and initialisation.
Lines 22 to 24	Set up the Facility represented by a vertical bar with a name written on it.
Line 26	Produces random characters for explosions
Line 30	Prints a minefield and sets signs away
Lines 1000 to 1080	Are the sub loop that advances the cars and detects keypresses and explodes mines etc.
Line 1000	Senses whether there is a car present, and if not recycles unless firing routine called.
Line 1010	Detects whether a car has reached the target and if so raises the game.
Line 1020	Advances cars on a random b axis.
Line 1022	Detects whether mine exploding has been requested, and if not goes on to ask whether firing routine is called.
Lines 1064 to 2066	explode the mines and cars if present.
Lines 1064 to 1000	fire the ray

```
   1 FOR f=USR "a" TO USR "d": R
EAD fi: POKE f,fi: NEXT f
   2 DATA 0,0,1,63,127,255,127,2
4,127,136,8,255,255,255,255,0,19
2,32,48,248,252,253,254,24,0
   3 LET test=0: FOR f=USR "g" T
O USR "f": READ fi: POKE f,fi: L
ET test=test+fi: NEXT f: BORDER
3: IF test<>1914 THEN  PRINT "da
ta error": STOP
   4 DATA 255,63,31,15,7,3,1,0,2
55,252,248,240,224,192,128,0,0
   5 PRINT  PAPER 4;"        CRYO
NICS CARS                You are inc
 charge  of  securityat Spectrum
  Cryonics  Ltd.  Youare under
attack  from  a rivalorganisatio
n who are  trying  tocrash cars
into the front of thestorage fac
ility.  However,  theapproaches
are  mined.  You  canset off a m
```

```
ine by premsing itenumber. You
 can alen use a raywhich firem
 acroma the front ofthe facilit
y. This ray only dis-ables, and
therefore a disabledcer can at
t as a shield forandher.
                       Re the game
 progesses, there aremore cere.
Scoring is for eachhit, increa
sing with difficulty.Use of the
ray reduces score. Ifa car gets
through, the no of"
   6 PRINT PAPER 4;"care and th
e scoring rate arereduced. Mi
ne 10 is a ":''    "
   7 INPUT BRIGHT 1; PAPER 5;"A
re you ready to play?";a$
   8 REM "Cryonics" is (c)
Reeves Telecommunications Lab-
oratories Ltd 1982. A copy of
this program is available with
many others on the "Porthtowan
Combo Tape" priced £4 from the
company at West Towan House,
Porthtowan, Truro, Cornwall TR4
8AX
  10 PAPER 6: BORDER 7: DIM c(10
): DIM m(10): DIM c$(22): LET sc
ore=0
  11 LET diff=1
  13 IF diff<1 THEN LET diff=1:
 REM loop return point.
  20 CLS : FOR f=1 TO diff: LET
c(f)=28: NEXT f
  22 LET c$="SPECTRUM CRYONICS L
TD"
  24 FOR f=0 TO 21: PRINT AT f,1
; PAPER 4;c$(f+1): NEXT f
  26 FOR f=USR "f" TO USR "j": P
OKE f,255*RND: NEXT f
  30 FOR f=1 TO diff: LET m(f)=7
+INT (RND*13): PRINT AT f*2+1,m(
f);"D";CHR$ (f+88);"E": NEXT f
1000 FOR f=1 TO diff: IF c(f)=0
THEN GO TO 1030
1002 LET flag=1
1010 IF c(f)=1 THEN LET diff=di
ff-1: GO TO 13
1020 IF RND>.5 THEN BEEP RND*.0
1,RND*.01: LET c(f)=c(f)-1: PRIN
T AT f*2,c(f); INK 2;"ABC "
1022 LET mine=CODE (INKEY$)-48:
IF mine<1 OR mine>diff THEN GO
TO 1050
1023 IF m(mine)=0 THEN GO TO 10
30
1024 PRINT AT mine*2+1,m(mine);"
   ": GO SUB 9000
1026 IF ABS (c(mine)-m(mine))<2
THEN PRINT AT mine*2,c(mine); F
LASH 1;"OK!": GO SUB 9000: PRINT
 AT mine*2,c(mine);"    ": LET c(
mine)=0: LET score=score+diff
1028 LET m(mine)=0
1030 IF INKEY$<>"F" AND INKEY$<>
"f" THEN GO TO 1039
1032 FOR g=21 TO 1 STEP -1: PRIN
T AT g,2; INK 3; BRIGHT 1;"■"
1034 IF SCREEN$ (g-1,2)=" " THEN
  GO TO 1037
1036 PRINT AT g-1,2; INK 3; FLAS
H 1;"GHC": LET c((g-1)/2)=0: LET
 score=score-2*diff: GO TO 1038
1037 NEXT g
1038 FOR h=21 TO g STEP -1: PRIN
T AT h,2;" ": NEXT h
1039 PRINT AT 0,10;"Score = ";sc
ore;"   ": NEXT f
1040 IF flag=0 THEN LET diff=di
ff+1: IF diff=11 THEN LET diff=
10
1050 IF flag=0 THEN GO TO 20
1060 LET flag=0: GO TO 1050
9000 BEEP 1,1: RETURN
```

Cryonics Care
by J de Rivaz

Arcade Avenue

Tropical maze

The big news for Spectrum owners at the moment is, of course, the release of *Sabre Wulf* by Ultimate. This 48K game is a departure for Ultimate since it has been released at a pricy £9·95, supposedly to recompense the company for its 'increased development time'. I am sure most people will feel the game is worth the extra — there's so much average software about these days that is already hitting the nine or ten pound mark — in fact the only real surprise is that Ultimate's first two 48K games were any cheaper.

The theme of the game is similar to *Atic Atac*, but set in a tropical jungle. You have to run around a maze (much more claustrophobic than *Atic Atac*) which 'pages' rather than scrolls as you move off the screen, killing some nasties, dodging others and collecting various items which help you gain points, survive attack and eventualy escape. The graphics are, as ever, superb with incredibly detailed backgrounds and wonderful animation.

Doubtless in later weeks we will be coming back to this game with various high scores, hints and tips (so hurry up and send them in). However, imagine my surprise when no less than three letters appeared within days of the release by people who had completed the game.

Colin Watts of Newcastle-Upon-Tyne has scored 93,280 and finished the game with 65% completed. He finished it on 11 June and passes on the tip for people who are trying to map the jungle — it has 16 × 16 screens and the start screen is six up from the bottom and nine from the left.

Colin was however pipped by Mr S Dowd, also of Newcastle, whose letter was dated 6 June and who finished with a score of 89,250 and a previous best of 114,000. But the champion, so far, is Des Claypole of Peterborough who on 7 June wrote with a finishing score of 124 406 and 60%, and a high score of 190,060 and 90%.

Incidentally like *Atic Atac*, the score and % are reflections of how many screens you have covered, objects collected, etc. I think it is just as challenging to try and finish with a low % as with a high one.

All three gave proof of completion by relating details of Ultimate's follow up game in the Sabre Man series which is revealed on completion of *Sabre Wulf*. This new game, to be called *Underworld*, will be developed using the same Operating System and I presume continues from where Sabre Man enters the Cave mouth.

Finally, on the subject of new releases for the Spectrum, I hope *Sabre Wulf* doesn't obscure the superb *Tornado Low Level* from Vortex (of *Android 2* fame). This new game is fun, addictive and graphically superb. As you fly your jetplane over a rocky landscape diving low under telegraph lines and flying around houses and trees to hit the target, the shadow of the plane adjusts perfectly to the varying terrain. It is one of the best 30 games I have seen and should not be missed.

Tony Kendle

The Arcade Corner is a new section for anyone who enjoys playing arcade games. If you have any comments, from playing tips on difficult games or programs you'd particularly like to praise (or blame!) then write to Tony Kendle, Arcade Avenue, *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2H 7PP



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Open Forum

Circles

on BBC

This procedure is designed to be used within another program. The procedure itself does not refer to any line numbers and all variables outside that of the parameters are local.

The actual functions of this circle drawing utility are.

a) Draws circles at any screen position.

b) Any width or height of circle can be drawn.

c) The start and finish point of the drawing can be specified in degrees, so that elipses can be drawn.

d) The circle can be filled.

e) The circle can be drawn or filled in any colour depending on the mode.

How to use it

Proccircles (300,300,100,400,0,360,"FILL",3)

This will draw a circle at co-ordinates 300,300 of width 100, height 400. Also it will *Fill* it in. The colour being yellow (3) providing it is in *Mode2*.

It has drawn a full circle because the start and finish was specified as being 0 and 360 ie, if they were specified as being 90 and 270 it would draw a semi-circle. If you do not want to fill the circle or elipse then put *"Nofill"* into the speech marks instead of *"Fill"*

```
10DEFPROCcircle(X,Y,width,height,start,finish,fill$,colour).
20LOCALfill,xcor,ycor,AN,angle
30IFfill$="FILL"THENfill=TRUE ELSE fill=FALSE
40GCOL0,colour
50VDU29,X;Y;
60MOVE0,0:MOVESIN(RAD(start))*height,COS(RAD(start))*width
70FORAN=start TO finish
80angle=RAD(AN)
90xcor=SIN(angle)*height
100ycor=COS(angle)*width
110IF fill THENMOVE0,0:PLOT85,xcor,ycor ELSE DRAWxcor,ycor
120NEXT
130ENDPROC
```

Circles
by P Venables

Microradio

GW6JJN

The other parts

An attempt now to catch up with some of the new software in the radio computing field.

A letter received from Pinehurst Data announces a Spectrum version of their original Morse Code reading program for the ZX81 that was reviewed a few weeks ago in Microradio. To this day I am amazed at how that program was contained in an unexpanded ZX81.

Also from Pinehurst Data comes a macro construction and animation program for the Spectrum. This will enable the user to create animated scenes or cartoons of up to fifteen minutes duration which will certainly appeal to the amateur television enthusiasts. Contact Pinehurst Data at 68 Pinehurst Park, West Moors, Wimbourne, Dorset, for more information. I hope to review these two programs soon in Microradio.

Once again Grosvenor Software has ben extremely busy with the release of three new Radio Teletype (RTTY) receive and transmit programs for the Vic 20, the Commodore 64 and the Acorn Atom. Following on from their incredible RTTY program for the Dragon reviewed in Microradio some months ago, Michael Kerry G4BMK in the shape of Grosvenor Software has probably done more than anyone else in making this fascinating mode of communication possible. Combined with Roger Barker of G4IDE Microsystems, who has done the same for the Spectrum Radio Teletype is now available cheaply for the most popular machines on the market. The new Grosvenor programs will be reviewed in a future Microradio but further information can be obtained from Grosvenor Software, 22 Grosvenor Road, Seaford, East Sussex BN25 2BS.

Radio teletype, for all those people writing to me hearing the term for the first time, is a form of communication used by radio amateurs, newsagencies, satellites and various other marine and commercial users for instant communications on both shortwave and VHF radio. If you tune into a software radio transmission you will often hear noises rather like a computer cassette being played. The chances are that this is radio teletype or RTTY as it is known. All that you need is your micro, a radio receiver, a simple interface (interface not required for the Dragon) and a simple RTTY software program and you can tune the radio and receive all sorts of interesting stuff displayed in plain English (or any other language) on your TV. This is certainly the cheapest and easiest way to interface your micro to the real world. And computer games never seem quite the same afterwards.

Ken Dutton of Dingwall, Ross-shire writes asking how to get into radio computing, pointing out that he has a BBC micro. The best advice I can offer Ken, is to point you in the direction of Ramtop, the radio-computing users group who deal with several micros but especially the BBC. Ramtop can be contacted at Great Billing Rectory, Great Billing, Northampton. For those people with Sinclair micros interested in radio computing, the user group is Sarug, 3 Red House Lane, Leiston, Suffolk. I must ask anyone contacting user groups to include a stamped addressed envelope to be sure of a reply. The same goes for letters to Microradio, of course.

Memotech users interested in radio-computing will find a sympathetic ear in the shape of Dave West, 129 Old Stoke Road, Aylesbury Bucks HP21 8DG who wants to contact like-minded Memotechers.

Finally, I have just received a letter to Microradio from Thessalonika in Greece. Which just goes to show that *PCW* refreshes the parts that other magazines cannot reach.

Ray Berry GW6JJN

This series of articles is designed for radio and microcomputer enthusiasts alike. If you have any queries that you want answered, hints and tips to share or topics that you would like to see covered, write to Ray Berry, Microradio, *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2R 3LD.


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Tony Bridge's Adventure Corner



A mighty mountain

Every day, a little gnome staggers through the streets of London, weighed down by the bulging sack on his back. What is he doing, this poor creature? Delivering all your letters to The Great Elf, that's what: a great pile each day, a small hill each week, a mighty mountain every month comes tumbling through the letterbox. Thus it will come as no surprise to you when I say that I am very late in answering all your enquiries!

Hugh T Walker of Guildford, is, I hope, a patient Adventurer — he wrote a number of letters to The Corner in March and April, and he seems to have had a lot of fun with several Adventures:

"I have solved *Planet of Death* and *Espionage Island*, both by Artic, and *Black Crystal* (by cheating! — it is in unprotected Basic) by Carnell. As for the sample adventure in *Dungeon Master*, from Crystal, I haven't the time to reach the ultimate grade — have you reviewed this one? It has the added bonus of being an Adventure-creation program, although it has not had the publicity which *The Quill* has received." (see my comparative review in *Micro Adventurer*, June issue.)

"*Valhalla* - I think I need to be unemployed to solve this one. Boldir is a stroppy so-and so who won't do anything for me. I thought the answer to "Darkness to Midgard" was the dark building, but the ring was not there!

"*Pharaoh's Tomb* — I can't find all the treasure, and I can't put out the fire in the Fire Room." (Have you tried taking the ice here, Hugh?) Hugh goes on to mention some of the books that he has read. *Invent and write games for the Spectrum*, by Noel Williams (Noel is an excellent writer — watch out for a joint collaboration between him and the Grand Elf to be released shortly).

"*Dicing with Dragons* and the *Warlock of Firetop Mountain* series by Ian Livingstone *Spectrum Adventures* by Tony Bridge and Roy Carnell (sounds familiar, and The Grand Elf can add another book to this list — *What is Dungeons and Dragons?*, by Butterfield, Parker and Honigmann.

Hugh then sent me several letters, over a few weeks, about *The Quest*, and his progress with the game. On my recommendation in *The Corner*, Col 3 No 6, he bought a copy of *The Quest* and quickly knocked up 590 points and the rating of Super Dungeon Master. "I had some problems with the *Save* routine (apparently the volume settings during saving have to be very accurate, but just needs a little experimentation) — Hewson Consultants could not have been more helpful, 'phoning me back within a couple of days with the answer to my problems."

Anyway, Hugh goes on to describe *The Quest* in great detail — and it is obvious that he finds the game as absorbing as Alan and Daphne Davies did, back in Vol 3 No 6.

Since then, I have received many letters about that wonderful Adventure. Typical of the remarks made is this, by Des Claypole (oh, sorry, *Celembrimbor of the Gwaith-i-Mirdain* - well, that's what it says here!).

"This is, in my opinion, one of the best pieces of software available for the Spectrum. It contains all the ingredients of a great Adventure, with hi-res graphics, sophisticated sentence recognition, fast response, some tough puzzles and a lot of monster-bashing."

There are one or two problems that seem to crop up regularly in the letters I get. The first is how to get into Castle Oops. When at the door to the Castle, make sure that you have the long Key, and then try emulating Aladdin, and type *Open S* — at least, I would like to think that the program recognises the abbreviation as Sesame, and not *South!* And as a further hint, don't venture into the Castle without a mirror. To cross the river, you must have the Magic Ring, or else you will have a list of the directions — the clue will take the form of a list of the numbers: SOUTH: 1, NORTH: 2, WEST: 3, EAST: 4.

Starting from the sign that says *Experimental Curved Space Excavation*, go 2,2,2,3,3,2,2,3,3,4, and you will arrive at the well-oiled machine (just like PCW!), and then go 1,1, — now on to the forest, in which it is very easy to get lost. From the very start of the Adventure, keep going North until you reach a burrow. From here, go 4,4,1,1,4,4,1, and you should get back to the track. Should you get lost in the forest, go 4,4,1,1,4,4,1,1,3,3,3,3, and then carry on 2 to the burrow.

These clues were passed on to me by Glenn (Balrog Basher) Morgan, for which much thanks! Glenn has a number of other interesting things to say about *Quest*: as a tip to Ian Ritchie, who was stuck some weeks ago, type *Swims* (while wearing the ring as I said before), and Ian, bear in mind that after killing a monster, you may find that it will drop something that will come in handy. Glenn, along with several other *Questers*, finds that the Wizard actually doubled his luck when he paid him. *Quest* seems to getting a bit like *The Hobbit* thanks to the rating system in which the player gets given a score as well as a name — I could only ever manage *Cave Crawler*, but Chris Baldwin of Merseyside, Ken Bolton of Yarnton in Oxfordshire, Graeme Cushion of Doncaster and Christopher John Fox of Cardiff, have all attained 600 points. Christopher has a useful observation to make — you will only solve the Adventure if you score 590 points: the final scene will then unfold as long as you are standing in the right place, when you will be sent to a room in which there is a map.

Before I leave *Quest* (I will return to it, as it is a very promising Adventure), I must mention a letter that I received from Shirley Parker-Munn, down there in Powys. You'll forgive me for not discussing your letter in depth or detail, Shirley, but it was most interesting, and I'm glad to see that you are filling up your time with something interesting — and tell your eldest that he has got very good taste! Shirley has completed many Adventures, among which are *Quest*, *The Hobbit*, the Artics, the *Mad Marthas*, Gilsoft's *Magic Castle*, *Diamond* and *Timeline* and would be very happy to help anyone else presently struggling — just send your queries to me (including an SAE as usual) and I will pass them along to her. Finally, Shirley, I hope to be among the first to see your efforts on the *The quill!*

Adventure Helpline

Going bananas? If you are stuck in an Adventure with nowhere to turn do not despair — help is at hand.

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Remember — the system only works if those adventurers who have solved the puzzles get in touch. Every week is Save An Adventurer Today (SAAT) week!

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This series of articles is designed for novice and experienced Adventurers alike. Each week Tony Bridge will be looking at different Adventures and advising you on some of the problems and pitfalls you can expect to encounter. So, if you have an Adventure you want reviewed, or if you are stuck in an Adventure and cannot progress any further write to Tony Bridge, Adventure Corner, *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2H 3LD.

Peek & Poke



Hi-res pictures

Simon Johnson of Sheffield writes

Q I always wondered how commercial programs displayed high resolution pictures. I thought the most obvious way would be to copy the whole display file into Ram. I tried it twice, once into a low address in Ram, and then into a high one I assume it has to take up 6,000 bytes (6,143 in fact) How then do commercial programs? Can you tell me how you store pictures and then call them onto the screen?

A Pictures on the Spectrum, which is the machine I guess you have, are displayed to the tv screen from two areas of Ram. The Display File (address 16384 to address 22527) holds the data to be displayed on the screen, and the Attributes File (address 22528 to address 23295) holds the colour and display characteristics of each position on the screen.

As you can see the memory required to hold a complete picture is 6,912 bytes (6,144 for the display file, and 768 for the attributes) Now, as 6 pictures would require 41 532 bytes that only leaves 7 620 bytes for the actual program. Not a lot you may think, but an awful lot for a machine-code masterpiece

The normal technique adopted is to store the pictures at the top end of Ram and then to use a screen switching routine (in machine-code) to put up the new screen. It is also normal practice to store the first screen in the display file and not to carry that overhead in the program.

To store a picture in a program you need to put the contents of the display and attribute files into a high memory address and then save them to cassette as you would a piece of machine code program.

Many commercial programs use complex data compression tricks to get in more pictures For example, often any particular picture is made up of a number of elements some of which are used as part of other pictures In this way the screens are built up as a jigsaw of the same parts arranged in different ways.

Broken Genie

C Marriot of Berkhamsted, Herts, writes

Q I have a non-working Colour Genie (due to a keyboard defect) and I wish to know if it is possible to use the Z80 processor and 16K Ram chips inside to convert my BBC B to a 2 processor, 48K machine, and how I go about it? Also, if I do this, what additional software will I be able to run on it?

A The main reason for adding a Z80 chip to a BBC is to run software under the CP/M operating system. This allows you access to a large number of software packages of which perhaps the most famous are the STAR series (*Wordstar*, *Calcstar* and *Datastar*)

Whilst it is possible for you to build your own up-grade kit it would be a prohibitively daunting task. It's not just simply a matter of connecting up a few chips; I'm afraid you would need to be a good electronic engineer

As I dont really have any good news for you on that front perhaps you would be interested to know of a firm near you who might be able to cure your sick Genie? Computer Field Maintenance of Excell House, Trust Industrial Estate, Wilbury, Hitchin, Herts, say that they will undertake repairs on any make of popular home micro Why not give them a ring, and give your Genie a new lease of life?

Basic variables

Jonathan Frank of Edgbaston, Birmingham writes

Q I was wondering if you could tell me how to set up Basic variables from machine-code on the Spectrum. How is the variables area organised? The problem arises from Myrmidon's *Micro-print 85* machine-code utility, in which some variables have to be set up for printing in the right place. I am writing an Interface 1 routine which will let you just type *Print X,Y,CPL,ATTR*, for position, character size, and colour, and the routine will do the rest. Can you help?

A Chapter 24 of the Spectrum manual, pages 166-167 illustrates how variables are held in the Spectrum. If you want more information then why not try Peeking the contents of the variables area for a program that you have written, ie, where you know what the size and names of all the variables are.

Graphics and sound

Michael Crawshaw of Hinchley, Leics, writes

Q Having read *Commodore 64 Computing* by Ian Sinclair (which was nothing short of excellent) to plough my way through Basic, I have decided to go onto graphics and sound

To help me I bought *Graphic Art* by Boris Allan which seems too complicated for a beginner like myself I would be grateful if you could give me more information on 'simple' graphics books.

Also, would machine code be easier to operate the Commodore graphics?

A Your second question actually helps me to answer your first. I would suggest that you have a look at machine-code programming The full graphics capability of the CBM 64 is far better exploited in machine code than in Basic There is a book *Using the 64* by P Gerrard, which covers the use of machine code, particularly in the area of graphics and sound. Although, I could not describe it as a simple guide to graphics I think it is well worth the effort of grafting away at the examples it gives. The book is published by Duckworth and costs £9 95

Dots per second

Oliver Snow of Shrewsbury, Shropshire writes

Q I have several questions to which I have been unable to find the answers.

1) What is the meaning of the term Baud rate?

2) Is there any way I can alter the Baud rate for saving and loading from tape on my Spectrum?

3) Where in the Rom are the Save and *Load* routines located?

A The original meaning of Baud referred to early telegraphic signalling, and meant 'one dot per second'. In computer language this translates to one bit per second. Therefore, when reference is made to 300 Baud, it is merely another way of saying that 300 bits per second, or 37 5 bytes per second, are being transmitted.

The Rom routines for cassette handling start at address 4C2h and finish at 9F3h. In order to use them yourself you will need to refer to them in some detail. *The Complete Spectrum Rom Disassembly* by Logan and O'Hara published by Melbourne House is ideal and contains all the information you will need.

Is there anything about your computer you don't understand, and which everyone else seems to take for granted? Whatever your problem *Peek* it to Phil Rogers and every week he will *Poke* back as many answers as he can The address is *Peek & Poke*, *PCW*, 12-13 Little Newport Street, London WC2R 3LD

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SWAP MATTEL Intellivision + 7 carts and 40 chan CB SWR meter and two aerials (v g.c) for your issue 2 or issue 3 48K Spectrum or CBM 64 Tel 0933 76043 please

SPECTRUM SOFTWARE to swap Ten Little Indians (Digital Fantasia) for any Level 3 or other Digital also Horace G.S Astro Blaster Heathrow A.T.C Embassy assault, swap separate or everything for Quill Tel (0905) 643516

WILL SWAP superior software Lost City and Gisleen a Gamble for two more adventures. One must be Legion + any other Ask for Philip Leyland 07744 51872.

SWAP M10 PROGRAMS for ZX Spectrum Send your list for exchange A Tuscano Francesco Via Dei Salici 17 20025 Legnano (MI) Italy

DRAGON 32 swap any three programs for Merlin Sprite Magic with booklet. Choose from Devil Assault R O Darkness Crazy Painter Pedro, Cuthbert in Jungle Contact Ian 3 Birchwood Ave Grove-Hill M'bro Cleveland TS4 2X8

WANTED THE QUILL. Offers under £9 Will pay 40% for most other Spectrum software Tel Blackpool (0253) 691223

EXCHANGE 3D Deathchase, Wheelie, Zaxxon Ant Attack for The Quill Write to Doug Duffin 1/4/1 Murhead University of Stirling Stirling Scotland

WANTED — TI-99 4A Extended Basic or editor Assembler module Will pay half price Ring (0924) 468535 (after 12 noon)

£20 IS ALL I am wanting for my Spectrum sound synthesiser + tape Cost over £30 Will swap for hand-held C 5 or keyboard Tel (0241) 54106.

SHIP OF THE LINE, Snooker Everest Ascent Wheeler Dealer All for CBM64 Swap for other CBM64 progs or sell £3 each Tel (0206) 45286

ADVENTURE HELPLINE

Magic Mountain on Spectrum. I can t find magic carpet. Anne Elmes, 16 Forest Ave, Cefn Hengoed, Mid Glamorgan

Voodoo Castle on Vic 20. How do I get past the Ju-Ju Bag? How do I get out of the jail cell? How do I get the wooden boards in the chimney? Andrew Spencer, 16 Lawson Ave, Grimsby

The Count on Vic 20. 1) What use are the vents? 2) What do I do once in the crypt? S Parker, 26 Tithelands, Harlow, Essex.

Twin Kingdom Valley on Commodore 64. How do I get the master key off the dragon in the desert king's castle without being burnt to death? J C Ellis, The Vicarage, Gorse Terrace, New Tredegar Gwent

Black Crystal on Spectrum. How do I get across the abyss and through the temple maze and keep up enough spiritual and physical strength to carry on the quest? Trev King, Box House, 25 Ashby Rd Woodvill, Burton-on-Trent, Staffs

The Count on Vic20 How do I enter the vent in the crypt and how do I kill the bat? Michael Gargett, 48 Wright Cres, West Hill, Bridlington.

Pirate Cove on Vic20. Where can I find the second treasure? Kate Buckingham, 144 Elmwood Rd, Barnton, Northwich Cheshire

Lords of Time on Spectrum. How do I get out of the pit west of prairie in time zone 3? P J White, 24 Caldwell House, c/o West Park Hospital, Epsom, Surrey

Valhalla on Spectrum. I've found Offnr, but I can't get Drapnir and how do I open the chest in Hall? Colin Williams, 28 Erskine Rd, Colwyn Bay Clwyd.

The Count on Vic20. How can I break the dark lens in the solar oven, is the crypt a dead end, and how can I get on to the castle roof? Simon Crowhurst, 35 Anerley Close, Allington Park, Maidstone, Kent

The Hobbit on Spectrum. How do I get out the goblin's dungeon, and how do I get to the east bank of the river? Alistair Hayes, 4 Dawpool Drive, Bromborough, Merseyside

The Quest on Vic20. How can I get the jewelled sword in the lower caverns? M Buttesfield, 14 Bleasedale Ave, Clitheroe, Lancs

Urban Upstart on Spectrum. How do you fly the plane? (I have the book, the flying suit, and I have inserted the key into the panel) Alex Hughes, 36 Ralph Rd, Shirley, Solihull, W Mids

Espionage Island (1) and Adventure Quest (2) on Spectrum. (1) I get shot by helicopters when in boat. (2) Can't open the rusted iron grate, and can't reach orchid above head. Tho James, 12 Egan Close, Gatcombe Park, Hilsea, Portsmouth.

The Hobbit on Spectrum. How do you get back along the forest road without being killed? Is there a way back through the elvenking's halls? Mark Casey, 7 Mariston Ave, Lache Park, Chester

Pettigrew's Diary on Dragon 32. I have found £800 to buy the train ticket, but who do I buy it from? Gary Price, 36 Larkhill Cottages, Old Langho, nr Blackburn, Lancs

Diary

Electron and BBC Micro User Show	Alexandra Palace London	July 19-21 10.00am-8.00pm July 22 10.00am-4.00pm	£3.00 adults £2.00 children	Database Publications 66 Chester Road Hazel Grove, Stockport 061-456 8383
Sinclair Computer Users Exhibition	Essex Exhibition Centre Moulsham Street Chelmsford Essex	July 21 10.00am-6.00pm	50p adults 30p children	Essex Exhibition Centre Moulsham Street Chelmsford 0245 25900
Scottish Personal Computer World Show	Assembly Halls George Street Edinburgh	July 26-27 9.30am-8.00pm July 28 9.30am-5.00pm	£1.50 adults £1.00 children	Scottish Industrial and Trade Exhibitions 64 Charlotte Square Edinburgh EH2 4DR 031-225 5486
2nd Official Acorn User Exhibition	Olympia 2 Hammersmith Road London	Aug 16 (trade day) Aug 17-18	£2.00 adults in advance £3.00 and £2.00 on door	Small Enterprises 20 Orange Street London WC2H 7ED

FACTORY FLOOR

Factory Breakout is a pretty striking new program from Poppy Soft — one of those small companies who has kept going in difficult times on the sheer quality of its programs.

Factory Breakout is a three part arcade game which rings enough changes on old themes to be pretty compulsive. You are a robot trying to escape from a factory; the first step is to be born — yes, problems start early for this robot. This involves swivelling round and round to shoot the laser beams zapping from all sides — its sweaty-palmed stuff.

If you survive this then there is a short, avoid things section where your robot must avoid rejection lasers (a bit easy this bit) and then on to a kind of vertical *Pacman*.

This section involves going up lifts and coming back down the screen via series of trapdoors which gradually change colour as you repeatedly pass through. You are chased by a group of monsters who are certainly related by blood to the Pacman ghosts. The only way to beat them is to 'eat' a sort of power wall for a few moments: the globs grin becomes fearful and twisted and you heap your revenge upon them. Cruel but just.

Program	*Factory Breakout*
Price	*£8.80*
Micro	*Spectrum*
Supplier	*Poppy Soft, The Close, Common Road, Headley, Newbury, Berkshire*

CRYSTAL BALL

Classical loonyness from Superior Software in the form of *Mr Wiz*. A program with one of those plots of such oddness you really can't imagine where they come from (drug crazed 16 year-olds I'll be bound).

Mr Wiz is a cut inspector OK, I'm lying — Mr Wiz is a wizard and you have to move him around a garden eating cherries (why cherries? I don't know, perhaps they're easier graphically. Objecting to him eating cherries are gremlins — these nasty personifications of thing that don't work properly will attack you and can only be stopped by laser? No Gun? No Wand Zap? No Mr Wiz's trained Doberman Pincher? No They are stopped by Mr Wiz dropping apples on them or by him lobbing his crystal ball at them.

Additional facts you may want to know about this game are that gremlins may occasionally dig a tunnel to get you and that eating magic mushrooms earns you extra points. However this is the gremlins den and having their dwelling demolished in such a humiliating fashion makes them very upset. You can see their point. Aside from the fact that Superior Software have a pretty good reputation, I should think the description of the game alone would be enough to make you want to rush out and buy it.

Program	*Mr Wiz*
Price	*£7.95*
Micro	*BBC B*
Supplier	*Superior Software, Regent House, Skinner Lane, Leeds LS7 1AX*

OBSTACLE COURSE

Tales of the Arabian Nights is the latest arcade release from Interceptor software who have been putting them out at quite a rate recently.

Like a lot of games recently this one is in that nebulous area where adventures and arcade games meet. Basically, what you get is a whole series of arcade games over several screens in which prince Kalender has to run and jump over several obstacles to win (poor woman) his princess.

As a game it's pretty good — there are a couple of features that lift it well above the run of the mill. One is the speech which narrates the story as you go along: more impressive is the musical sound track which is brilliantly arranged and designed and tends to prove just how important computer 'soundtracks' are going to be in the future.

Program	*Tales of the Arabian Nights*
Price	*£7*
Micro	*Commodore 64*
Supplier	*Interceptor Micro's, Lindon House, The Green, Tadley, Hampshire*

Pick of the week

GOTHIC MUSIC

You've seen the movie (assuming you're over 18 — if you're under 18 you probably sneaked it onto your parents video when they were out) now play the game which is even more harmless (in terms of creating deep seated repressed fears) *The Evil Dead* has been released.

The game has had a lot of coverage (by us admittedly) and could be a dreadful disappointment. Fortunately, it isn't. What it takes from the film is a shack for its setting and combat with zombies as its general aim, apart from that nobody gets raped by a tree and there isn't much gore.

The screen display is of a top view of the shack — it scrolls left and right over three screens to fit it all in. Various items are displayed, a fire, a couple of beds, etc, and of course numerous zombies trudging about with arms outstretched like little green fork lift trucks.

However, these are occasional zombies (like occasional tables) since on occasion they revert to being your dear friends who came on a happy holiday with you to this lonely deserted place containing the fearful mystery ... now read on. (Actually have you ever known anyone go on holiday to lonely deserted places with evil mysteries that turns everyone into zombies — apart from Rhyl, of course, but I blame the bingo there — I mean why not go on a nice package tour to Benidorm or something.)

Anyway, aside from the intermittent Zombies, there are various objects that appear from time to time. Some of these are obviously useful like axes (I think they are anyway) others, like what seems to be a toothbrush, seem less so.

In a way playing the game has as much in common with adventure and strategy as with bang bang reaction stuff — rather like *Atic Atac* you simply have to find out what does what by trial and error — so far I have discovered that if one zombie meets another zombie then at least one of them becomes dismembered and nasty zombie legs, arms, etc, fly about, risking life and limb (geddit).

The other thing is that the Zombies do not always come straight for you — being zombies they are not too goal motivated and generally prefer to trudge about hoping something turns up.

Graphically, there isn't anything technically amazing here, but equally you won't be disappointed — what is important is the thought that has gone into the design of the game, you unearth its secrets slowly — like an adventure. As a bonus it has the most gothic opening credits and music on the demo mode I've yet seen.

Program	*Evil Dead*
Price	*£6.99*
Micro	*Commodore 64*
Supplier	*Palace Software, 275 Pentonville Road, London N1 9NL*

COMING SOON

Melbourne House will be releasing not one but two adventures around September time — *Sherlock Holmes* you will have heard of but *Zim Zalabim* may be less familiar

The program represents what will surely be the next wave in adventure games where animated graphics are coupled with classic text adventure puzzles and plots Indeed, the wave is only 'next' in that there's been nothing much on home micros in this country In America, on machines like the Apple IIc, such games have been around from the beginning of this year.

It looks like *Zim Zalabim* will be the first such program in that country and it s on the Commodore 64 The unfinished version I played with was extremely interesting, although I think I'd better reserve critical judgement for the moment because important features like the graphics and plot are still expected to change

To give you some idea, you begin standing outside a palace wall, you are a little man who can be moved left and right with a joystick and the same time more elaborate instructions can be typed in like a conventional arcade game

Thus moving left you will come across (as the screen scrolls) a beggar type *Examine beggar* and you will find out what, if anything, the beggar has that can help you. Typing *Look* makes the little man move his head left and right. Type *Go Forward* and you move on to a new scene, although you have to wait a few moments for the scene to set itself up

Roughly speaking, as in *Valhalla*, physical commands have physical consequences on screen, eg, *Climb Rope* makes the man climb a rope In other respects it works like a conventional adventure printing a response to your input on the screen, eg, You look you see the castle walls. etc

Where *Valhalla* used text input and animated graphics to create a new sort of adventure, *Zim Zalabim* is using similar concepts to bring life to more familiar styles of adventure. I await September with some interest.

Program *Zim Zalabim*
Price
Micro *Commodore 64*
Supplier *Melbourne House.*

FOUR TASKS

Dimension 21 is a company, new to this country in the Commodore 64 market. Its first release is *Spy School* a multi part, multi screen arcade game — each part representing a different task you have been set by your spy school masters to prove your spy mettle.

There are four tasks, *Sabotage* — blow up an enemy base, *Burglary* — steal a briefcase without tripping various alarms, *Sniper* — shot all the helicopters and *Escape* — a five screen maze with a variety of obstacles

It's all very fast and furious with some nice animation. What's odd is that everything is so small — the little man you are moving around looks like something from an early Spectrum program. It's a bit of a shock to those of us used to large detailed sprites on Commodore games, but it doesn't in the end make too much difference My main concern is that it's probably a bit easy — I managed two of the four tasks on the second attempt

Program *Spy School*
Price *£8 95*
Micro *Commodore 64*
Supplier *Dimension 21*
91 The Broadway
Southall
Middlesex
UB1 1LN

BOMBS AWAY

Atari software for £5 50 is such a rare sight that it simply has to get a mention here *Dambusters* is the program in question and despite the price there really isn't anything wrong with it at all

Not I should add that there is anything very spectacular about it, but then the company producing it don't pretend that it is a *Zaxxon* or *Pole Position.*

What you get is a scrolling landscape dodge, shoot and bomb game where you pilot your Lancaster towards the Ruhr dams there to release your bouncing bombs and set back the German war effort for years (or days depending on which analysis you prefer)

Fight off baddie fighters, warships and anti aircraft fire, release the bomb at exactly the right moment, fly over a mountain and return home. It's a sort of scramble, but then it's sort of good fun and sort of cheap.

Program *Dambusters*
Price *£5 50*
Micro *Atari*
Supplier *NDSL*
Newmarket Distribution
8 Green Street
Willingham
Cambs CB4 5JA

SEVEN SEAS

Jolly Roger is a single key press adventure, but don't let that put you off it its quite different from the norm and, up to a point anyway, I was quite hooked

The idea of the game is to find some buried treasure — for this you need six clues once you have found the correct island.

Clues can be discovered by trading with natives of the large number of lesser islands you come across on your travels To trade you will need something to trade with, ie, doubloons (what use these are to a native I know not — perhaps they eat them, peasant communities aren't what they were)

Aside from all this, you must sail the seas and look after the state of the ship and your crew the former needs to be kept in good repair, the latter need to be fed.

The graphics are fairly simple, but reasonable and if you want to try something a bit different this is a good bet

Program *Jolly Roger*
Price *£5.95*
Micro *Spectrum*
Supplier *Video Vault*
140 High
Street West
Glossop
Derbyshire

MULTIPLE CHOICE

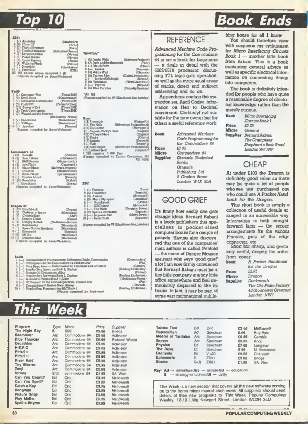
If you think that answering multiple choice questions on a variety of subjects is a sensible thing to do with a computer then *Mastermind* is for you.

It's a range of data tapes from Silas Software on, at the moment with more to come, English, Poems, Books, Stories and Plays.

What these data tapes provide is 20 questions of these subjects answered by pressing one of four keys — the questions aren't based on any particular syllabus so you couldn't legitimately say the program was educational. So if you simply want to answer multiple choice questions on your computer look no further

Program *Mastermind*
Price *£4.95*
Micro *Spectrum*
Supplier *Silas Software*
24 Highcroft Gardens
London NW11

New Releases is designed to let people know what software is coming on to the market. If you have a new game or utility which you are about to release send a copy and accompanying details to New Releases Popular Computing Weekly, 12 13 Little Newport Street, WC2R 3LD



Top 10

ZX81

1 ( ) *Zxxxxx* (Quicksilva)
2 (8) Chess 1K (Artic)
3 (2) Flight Simulation (Psion)
4 ( ) Football Manager (Addictive Games)
5 (1) Krypton Ordeal (Novus)
6 (3) Planet Raider (Novus)
7 (9) Space Raiders (Psion)
8 (4) Walk the Plank (Novus)
9 ( ) Scramble (Quicksilva)
10 ( ) *Sabre Sand* (CRL)
All 16K except where compiled † 1K
(Figures compiled by Boots/Websters)

Spectrum*

1 (2) Jetset Willy (Software Projects)
2 (7) Jack and the Beanstalk (Thor)
3 (1) Match Point (Psion)
4 (—) Cosmos (Ruscorex)
5 (5) Ashes Wulf (Ultimate)
6 (2) Fighter Pilot (Digital Integration)
7 (—) Lords of Midnight (Beyond)
8 (8) Trashman (New Generation)
9 (—) Psytron (Beyond)
10 (6) Blue Thunder (Foundry Systems)

*All 48K
(Figures supplied by W H Smith and Son, London)

Vic 20

1 (7) Computer War (Thorn EMI)
2 (8) Duck Shoot (Mastertronic)
3 (–) Submarine Commander (Thorn EMI)
4 (5) Flight 015 (Ferranti Craig)
5 (10) Tower of Evil (Thorn EMI)
6 (2) Tank Commander (Thorn EMI)
7 (7) Wizard and the Princess (Melbourne House)
8 (–) Undersea (Mastertronic)
9 (–) 3D Maze (Mastertronic)
10 (–) Snooker (Visions)
(Figures compiled by Boots/Websters)

Atari

1 (1) Bruce Lee (Datasoft)‡
2 (5) The Hulk (Adventure International)
3 (6) Encounter (Novagen)‡
4 ( ) Captain Sticky's Gold (English)†
5 (8) O'Riley's Mine (English)†
6 (2) Sinky (Cosmi)
7 (3) Zaxxon (Datasoft)
8 (–) Flak (Funsoft)‡
9 (8) Sea Dragon (Adventure International)
10 ( ) Jetboot Jack (English)†
† 32K cassette ‡ 48K Disc
(Figures compiled by Calisto Computers, 119 John Bright Street, Birmingham B1 1BE. Tel: 021-632 6458)

Commodore 64

1 (3) Beach-Head? (Visions)
2 (2) Beach Head (Centresoft)
3 ( ) BMX Racers (Mastertronic)
4 (5) Solo Flight (Centresoft)
5 (1) Manic Miner (Software Projects)
6 ( ) Orbitron (Mastertronic)
7 ( ) Stellar Wars (Commodore)
8 (–) Harrier Attack (Durell)
9 (10) Revelation (Solar)
10 (–) Hunchback (Ocean)
(Figures compiled by Boots/Websters)

BBC

1 (1) Fortress (Pace)
2 (4) Overdrive (Superior)
3 (5) Aviator (Acornsoft)
4 (3) Mary Olympics (Database)
5 (—) Hunchback (Ocean)
6 (—) JCB Digger (Acornsoft)
7 (—) The Mine (Program Power)
8 (7) Spellice Command (Superior)
9 (—) Jetpower Pac (Micro Power)
10 (—) Battle Tank (Superior)

(Figures compiled by W H Smith and Son, London)

Dragon 32

1 (10) Hunchback (Ocean)
2 (3) Caribbean in Space (Microdeal)
3 (9) Chuckie Egg (A&F)
4 (1) Dragon Chess (Oasis)
5 (2) Hungry Horace (Melbourne House)
6 (1) Buster Bar (Microdeal)
7 ( ) Space Shuttle Simulator (Microdeal)
8 ( ) Kriegspiel (Beyond)
9 (8) Mr Dig (Microdeal)
10 ( ) Dungeon Raid (Microdeal)
(Figures compiled by Boots/Websters)

Books

1 (—) Commodore 64 Programmers' Reference Guide, Commodore (Commodore)
2 (—) 50 Programs for the Commodore 64, *Erskine et al* (Pan)
3 (—) Very Basic Basic — Commodore 64, *Ellershaw and Schofield* (Century)
4 (—) Step by Step Spectrum Book 1, *Graham* (Dorling Kindersley)
5 (—) Sinclair QL Companion, *Allan* (Pitman)
6 (—) Step by Step Spectrum Book 2, *Graham* (Dorling Kindersley)
7 (—) A Guide to Playing Hobbit, *Elkan* (Melbourne House)
8 (—) 60 Programs for the Sinclair Spectrum, *Erskine et al* (Pan)
9 (—) Commodore 64 Games Book, *Bishop* (Granada)
10 (—) Step by Step Programming BBC Book 1 (Dorling Kindersley)
(Figures compiled by Bookwise)

Book Ends

REFERENCE

Advanced Machine Code Programming for the Commodore 64 is not a book for beginners — it deals in detail with the 6502/6510 processor discussing TTL logic gate operation as well as the more usual areas of stacks, direct and indirect addressing and so on.

Appendices contain the instruction set, Ascii Codes, information on Hex to Decimal conversion. Certainly not suitable for the new owner but for others a useful reference work

Book *Advanced Machine Code Programming for the Commodore 64*
Price *£7 95*
Micro *Commodore 64*
Supplier *Granada Technical Books, Granada Publishing Ltd, 8 Grafton Street, London W1X 3LA*

GOOD GRIEF

It's funny how easily one gets strange ideas Bernard Babani is a book publishers that specialises in pocket sized computer books for a couple of pounds Having also discovered that one of the companies' main authors is called Penfold — the name of Danger Mouses assistant who says "good grief" a lot I am now firmly convinced that Bernard Babani must be a tiny little company in a tiny little office somewhere and feel immediately disposed to like its books In fact, it may be part of some vast multinational publishing house for all I know

You should therefore view with suspicion my enthusiasm for *Micro Interfacing Circuits Book 1* — another little book from Babani This is a book containing general advice as well as specific electrical information on connecting things into computers.

The book is definitely intended for people who have quite a reasonable degree of electrical knowledge rather than the merely curious.

Book *Micro Interfacing Circuits Book 1*
Price *£2 25*
Micro *General*
Supplier *Bernard Babani, The Grampians, Shepherd's Bush Road, London W6 7NF*

CHEAP

At under £100 the Dragon is definitely good value an there may be quite a lot of people who've just purchased one who could use *A Pocket Handbook for the Dragon.*

This short book is simply a collection of useful details arranged in an accessible way Information is both straightforward facts — the screen arrangements for the various *Pmodes*, pins of the edge connector, etc

Short but cheap, and genuinely useful, despite the rotten front cover

Book *A Pocket Handbook for the Dragon*
Price *£2.95*
Micro *Dragon*
Supplier *Duckworth, The Old Piano Factory, 43 Gloucester Crescent, London NW1*

This Week

Program	*Type*	*Micro*	*Price*	*Supplier*
The Night Sky	S	BBC	£9.95	Bridge
Beamrider	Arc	Commodore 64	£9 95	Activision
Blue Thunder	Arc	Commodore 64	£6.95	Richard Wilcox
Decathlon	Arc	Commodore 64	£9.99	Activision
H E R O	Arc	Commodore 64	£9 99	Activision
Pitfall I	Arc	Commodore 64	£9.99	Activision
Pitfall II	Arc	Commodore 64	£9 99	Activision
River Raid	Arc	Commodore 64	£9.99	Activision
Toy Bizarre	Arc	Commodore 64	£9.99	Activision
Zenji	Arc	Commodore 64	£9.99	Activision
Strobe	S/Ut	commodore 64	£1 99	SA Weir
Can You Count?	Ed	Oric	£3.95	Mellowsoft
Can You Spell?	Ed	Oric	£3 95	Mellowsoft
Catch-a-Key	Ed	Oric	£3.95	Mellowsoft
Hangman	Ed	Oric	£3.95	Mellowsoft
Picture Snap	Ed	Oric	£3.95	Mellowsoft
Play Maths	Ed	Oric	£3.95	Mellowsoft
Spell-a-Rhyme	Ed	Oric	£3.95	Mellowsoft
Tables Test	Ed	Oric	£3 95	Mellowsoft
Rapscallion	Ad	Spectrum	6.95	Bug Byte
Moons of Tantalus	Arc	Spectrum	£6 45	Cornhill
Zapper	Arc	Spectrum	£2.95	Anco
Physics	Ed	Spectrum	£7 95	Longman
The Duke	Ut	Spectrum	8 95	M Alexander
Decimals	Ed	Vic20	£9.95	Chalksoft
Ephemeris	S	ZX81	£9 95	Bridge
Strobe	S/Ut	ZX81	£1.99	SA Weir

Key: **Ad** — adventure/**Arc** — arcade/**Ed** — education/ **S** — strategy-simulation/**Ut** — utility

This Week is a new section that covers all the new software coming on to the home micro market each week All suppliers should send details of their new programs to This Week Popular Computing Weekly, 12-13 Little Newport Street, London WC2R 3LD



Name of the game

TV viewers who watch the ad breaks will have noticed lately a new campaign on their screens which suggests that no-one will soon have any problems getting to grips with that bête noire of the modern age, the microcomputer. Have no fear suggests the ad, there is nothing to fear because there is nothing to learn. Macintosh from Apple makes computers as easy as ABC. It kills computer languages dead just as Bell's invention of the telephone killed Morse's code.

The campaign is filled out by full-page ads in the daily papers. One page in Morse code reads "Alexander Graham Bell has just invented the telephone". The next is a full page of computer code.

The third ad is the clincher. Disregarding gender difference in its sweeping claim of benefit for all humankind, the copyline proclaims "Apple has taught the machine about Man". The message is clear and effective. Don't strain your brain — just let the computer do the thinking.

It is a seductive message. Only grudgingly has the general public come to accept the computer. If you were in business these little gadgets could well be useful. If you were a kid there were some nasty games to play. But the expense of life in learning how to use one was simply disproportionate. What use could this cumbersome, expensive and unreliable electronic box of tricks serve?

Now, however, the computer's proselytes are legion and vocal. The product is everywhere. No blame attaches to hating it; but no praise either. "Prove that I have a use for it" has given way to "Perhaps I could give it a try". It is in order to capture the uncommitted that Apple have cast their wide net. The line is that you won't need to think about it. You don't want to think about it, do you? But if you could just start work with it just like sticking a typewriter on the desk and hitting the keys, could you be tempted?

Firing up the machine is not so hard. The keyboard is familiar. The concept of keystrokes appearing as text on the screen can hardly deter any but the most determined ostrich. But seduced by your own rapid progress, it is hard not to get carried away by your own prowess to make the machine do something — anything.

For the essence of Macintosh's "human-like" thinking lies in converting the operations of the computer into supposedly familiar images of the desktop. That the screen shows you is a load of doodles — "icons" — displayed in high-resolution graphics. A bunch of folders, empty unless you've already been at work. A clipboard. Plain paper. A notepad. A waste-bin. All the paraphernalia of cut-and-paste.

Is the desktop metaphor, derived from Xerox's work at Palo Alto on the Star system desirable or useful? I would say no — on both counts the computer is being sold short. Let us examine Apple's claim that Macintosh makes computing easy. The screen image of human tasks makes learning how to use the computer intuitive, it is claimed. Every picture worth a thousand control codes. At first, the novice learns quickly. It's fun.

But in the long term work, work with a computer is not easy. You can never be less than explicit in what you want it to do. It won't mind your thoughts, nor will it help you unscramble your balance sheet. If words are your business, all that iconography gets between your thoughts and their expression. If money is your game you still have to understand financial analysis. Only the computer is easy. If your work is difficult, it will remain difficult.

Another major claim is that you may exchange data files among applications programs. But, like the screen icons, this is only useful at the presentation level. Much is made of the fact that you can import graphics from spreadsheet, print out the results in lots of different typestyles etc. That is what the demos are all about. But is that useful? Yes — but only because the result — let us call it a management report — expresses "computing style". It is window-dressing.

If the report is duff the computer cannot enhance the feebleness of the content. And for the content to be good, to make use of the computer's true processing power, an operator must understand difficult and sometimes tiresome concepts.

And this is where Apple's advertisements sell computing short. By suggesting, albeit indirectly, that the computer will do the thinking for you, it will sell a lot of computers. That is, of course, the name of the game.

Martin Hay

Decimal place

Puzzle No 117

If you are looking for an excuse not to be out enjoying the good weather then try this.

The reciprocal of ninety-seven — as a decimal value — is 0.010309.

That's fine as far as it goes, but it only gives the value to the first four decimal places. What happens if we wanted to find the value to ten decimal places, or a hundred, or a million?

What is the value of the ninety-first decimal place?

Solution of Puzzle No 112

In each case £100 is deducted from each of the scores, the balance representing the actual amount won. The two *For Next* loops represent the numbers of the two types of correct answers given, and variable *C* is the number of incorrect answers (the balance of the twenty questions). The score is then computed and printed if it agrees with any of the three scores obtained.

```
10 FOR A = 0 TO 20 20 FOR B = 0 TO 20 30 LET C = 20 - (A + B) 40 SCORE = 30 * A + 24 * B - 15 * C 50 IF SCORE = 306 OR SCORE = 381 OR SCORE = 120 THEN PRINT SCORE, A,B,C 60 NEXT B 70 NEXT A
```

So, the contestants results were: Arlene 7 difficult, 9 easy and 4 wrong; Darlene 3 difficult, 14 easy and 3 wrong; and Marlene 2 difficult, 8 easy and 10 wrong.

Winner of Puzzle No 112

The winner is John Brunsdon, Estcourt Road, Gloucester, who receives £10.

Rules

If the puzzle can be sensibly solved using a computer, then the winner will have included a listing of the program used to find the correct answer. The closing date for entries to Puzzle No 117 is August 10.

The Hackers

Ok Snibblet–the place is surrounded. Come out with your hands up!

YA LOUSY COPPERS–YOU'LL NEVER TAKE ME ALIVE.

I warned you about trying to do your tax return with that toy computer.



BLADY CLAIR IS HELPING THE PIMAN WITH HIS ROLE IN THE FORTHCOMING PIROMANIA. (A HOT GAME FROM AUTOMATA)

...THEN WHILE HE'S MAKING WITH THE EXTINGUISHER, YOU'RE SETTING FIRE TO.

A BOTTLE!

I DON'T THINK MOLOTOV COCKTAILS ACTUALLY COME INTO THIS GAME..

NO..A BOTTLE HAS JUST WASHED UP ON THE BEACH!

PIMAN'S COPY

BIG DEAL! WE'RE SUPPOSED TO BE WORKING!

LOOK..A MESSAGE

"To Whom it may concerne, I, Crusoe, am stranded on a remote island, victim of a shipwreck..

"I am searching for ye treasure of William Bones, but am beset by ye nasty killer spiders...

YECH!

"His writings are coded, and I seem to spend most of ye day walking round and round ye Volcano, getting nowhere hastily

"Bones himselfe is no company nor help, as he is no more than another bleached skeleton. Only he knew the secret of escape, but he perished... the silly perisher

the annual AUTOMATA adventure is here!

CRUSOE

YIKES!

"In ye water, I am plagued by jellyfish, whose flavours I like not, by George!

"I have found an assortment of unusual objects whose purposes evade me Please send help! Yours etc"

for 48K SINCLAIR ZX SPECTRUM: MACHINE-CODE ANIMATED GRAPHIC & TEXT ADVENTURE Free music flipside!!! by Oan Hufon & the Castaways. PROGRAM BY JOE SMITH and artwork by Gremlin-Evans. Shipwrecked and stranded, on ye remote island, with nothing … a bottle of … an empty stomach. … Ye Adventure is only just beginning. … before it … you.

PLEASE SEND ME "CRUSOE" for 48K Spectrum @ SIX QUID.

MY NAME ....

MY ADDRESS ....

....

.... POST CODE ....

I ENCLOSE YE SUM OF £5 INCLUSIVE PRICE, or please DEBIT MY ACCESS / VISA CARD, number:-

....

send to: AUTOMATA U.K. LTD 27 HIGHLAND ROAD, PORTSMOUTH, HANTS. PO4 9DA, ENGLAND, or phone our 24-HOUR CREDIT-CARD HOTLINE on 0705 - 735242 ......



JOIN THE PIMANIACS

HEY THIS COULD MAKE A GREAT VIDEO GAME. LET'S SELL THE IDEA TO AUTOMATA!

IT SEEMS THERE MUST BE OTHER BOTTLES FLOATING ABOUT! CHAP CALLED JON SMITH'S DONE THAT.. AUTOMATA HAVE RELEASED 'CRUSOE' ALREADY

GADZOOKS! DOES THAT MEAN THERE IS HOPE FOR CRUSOE?

AND WILL FRIDAY EVER COME AROUND?

ORDER YOUR COPY OF THIS EXCITING, PERPLEXING & HILARIOUS NEW GAME AND BY PASS ROY FLOMLEY!